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CHINA'S ECONOMY LOOKS TOWARD THE YEAR 2000

VOLUME 1. THE FOUR MODERNIZATIONS

SELECTED PAPERS

SUBMITTED TO THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

MAY 21, 1986

Printed for the use of the Joint Economic Committee

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LETTER OF TRANSMITTAL

MAY 2, 1986.

To the Members of the Joint Economic Committee:

Transmitted herewith for use by the Joint Economic Committee, Congress, and the interested public is a study consisting of a compilation of papers assessing the economy of the People's Republic of China entitled, "China's Economy Looks Toward the Year 2000, Volume 1—The Four Modernizations." A companion volume containing analyses of foreign trade and modernization of the science and technology, military, and energy sectors is also being transmitted at this time. This study is part of the Committee's continuing effort to monitor economic trends in the Communist countries.

The Chinese are embarked on an economic modernization process of historic proportions. Early skepticism has given way to appreciation and careful reassessment, especially with the success of China's rural reform. The fact the world's most populous country can now feed itself and export food is an impressive achievement indeed.

We are grateful to the Congressional Research Service of the Library of Congress for making available the services of John P. Hardt to help plan the study. Dr. Hardt and Richard F. Kaufman of the Committee staff coordinated and directed the project and edited the present volume. Dr. Hardt was assisted by Donna L. Gold and Jean F. Boone of the Library staff. We are also grateful to the many government and private specialists who contributed papers to the study.

It should be understood that the views contained in the volume are those of the authors and not necessarily those of the Joint Economic Committee or of individual Members.

Sincerely,

DAVID R. OBEY,
Chairman, Joint Economic Committee.

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CONTENTS

VOLUME 1. THE FOUR MODERNIZATIONS

Page
Letter of Transmittal III
Highlights—John P. Hardt VII

I. SETTING

China's Modernization: Development and Reform in the 1980's—A. Doak Barnett 1
Economic Policy and Performance—Robert F. Dernberger 15
Political Stability and Succession—Harry Harding 49
Competing Political-Economic Strategies—Carol Lee Hamrin 72
Reorganization and Modernization in Post-Mao China—Christopher M. Clarke 90
China's Experiment With Fiscal and Monetary Policy—Dean Carver 110
Making Economic Policy: The Influence of Economists—Nina Halpern 132

II. HUMAN FACTORS

Overview: China's Human Resources—Leo A. Orleans 147
Implications of China's 1982 Census Results—Judith Banister 160
Coercion in Family Planning: Causes, Methods, and Consequences—John S. Aird 184
Labor Force Developments in the People's Republic of China, 1952-83—Jeffrey R. Taylor 222
Material Poverty in the People's Republic of China in International Perspective—Nick Eberstadt 263

III. AGRICULTURE AND THE RURAL ECONOMY

Overview: Agricultural Reform and the Rural Economy—Nicholas R. Lardy 325
China's Agriculture in the Eighties—Frederic M. Surls 336
The Reform of the Commune System and the Rise of the Township-Collective-Household System—Frederick W. Crook 354
Peasant Non-Agricultural Production in the People's Republic of China—Lee Travers 376
Water Politics and Economic Change in China—David M. Lampton 387
Recent Agricultural Price Policies and Their Effects: The Case of Shandong—Terry Sicular 407
Chinese Fisheries—Jaydee R. Hanson 431
Chinese Fertilizer Application in the 1980s and 1990s: Issues of Growth, Balance, Allocation, Efficiency, and Response—Bruce Stone 453

IV. INDUSTRY, TRANSPORTATION, AND CONSTRUCTION

Overview: Industry and Transport—Thomas G. Rawski 497
China: The Changing Structure of Industry—Robert Michael Field 505
Chinese Industrial Management: Outlook for the Eighties—William A. Fischer 548
Ownership and Control in Chinese Industry: The Maoist Legacy and Prospects for the 1980s—Christine P.W. Wong 571
Finance and Planning Reforms in Industry—Barry Naughton 604
The Informal Dimension of Enterprise Financial Reforms—Andrew G. Walder 630

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HIGHLIGHTS

By John P. Hardt

Under Deng Xiaoping, China has set forth on a course of ambitious modernization of the economy. In the initial stages, especially in the late 1970s when readjustment and retrenchment were required, the program of modernization and its targets for the end of the century seemed neither credible nor attainable:

Quadrupling gross value of industrial and agricultural output.
Tripling personal income.
Doubling energy output; quadrupling electric power.

However, with rural reform initiated in 1979, urban reform announced in 1984, and the 1985 science and technology reforms to more closely link research with economic requirements, the Chinese are now following a consistent pattern of improved performance—a trend line that could bring them close to the overall targets, which so recently seemed unattainable, by the year 2000. To be sure, a part of this early success represents recovery from the economically disasterous Cultural Revolution under Mao and his radical followers (the "gang of four") and improvements in the abnormally low productivity of China's overcentralized Soviet-style economic system. Still, by introducing extensive and wide-ranging reforms, the Chinese appear to be developing a new form of socialism—a unique mixture of central planning and market forces, referred to as "a socialist system with Chinese characteristics." If successful, these programs for economic development would bring China into the club of major powers, in one of the most rapid economic transitions since the British initiated the industrialization process in the eighteenth century.

Even prior to Deng's modernizations, some of the economic accomplishments of Mao's China were impressive. Industrial growth, although variable, has been significant since the Communists took power in 1949.

Still, a shift from extensive to intensive development in China—following economic reform and restructuring of the economy—is considered a necessary stage in all socialist development processes. Reform of the Chinese economy has also been required to overcome massive avoidable waste, central planning inconsistencies, excessive regulation that has impeded cost reduction and mobility, and lack of planning coordination that has led to significant cost increases. Furthermore, in the Maoist past there was little incentive to value costs accurately and to increase quality; innovation was absent from the Chinese economy except for specific priority sectors.

Sweeping, thorough-going reform by the year 2000 may not be necessary to meet Deng's goals of improved performance. Already, significant deregulation of the centrally controlled sectors and widespread introduction of incentive systems has brought about improved economic performance and this trend may continue.

- Decentralization may substitute local for central control; self-initiative for directed management; profit-seeking innovation and retention of profits from the market for material balances planning.
- Prices may become flexible and responsive to relative scarcity.
- The traditional zero price attached to investment—a major departure from scarcity pricing—may give way to interest bearing loans to promote new projects and user taxes to reflect the scarcity value of existing resources.

The reform environment which has already produced significant changes in China's economy would suggest that additional changes are likely to follow.

The most populous country in the world—its one billion people represent more than one-fifth of the world's population—China has shifted its population policy in the last decade from the Maoist view that more people are an asset, to a belief that unrestricted growth of its population would be a severe economic burden. General health indicators have been comparable to those of many more economically advanced economies, showing increased life expectancy, reduced infant mortality, and decline of infections and specific diseases. With a turn to population control during the last decade, and through a variety of incentives and often stiff penalties, Chinese authorities managed to lower birth rates from over 30 per 1000 in 1971 to 18 per 1000 in 1979 [from 2.3 to 1.2 percent natural growth per annum]—an astonishing reduction in natural increase. To maintain these levels of fertility despite a significant increase in the number of young people in the reproductive ages—and as part of a long-term demographic strategy to achieve a stable population of 1.2 to 1.4 billion—China has been pressuring couples to have just one child.

Even with a lower rate of population growth, there will still be the need to create some half billion new jobs by the early 21st century in order to maintain an accceptable unemployment rate of 5 percent or less. The traditional right to work has been challenged by this acknowledged unemployment rate. Taking into consideration both concealed unemployment and underemployment, urban unemployment may be as high as 10–15 percent, or several times the official rate. China's industrial labor force may now be larger than the total industrial labor force of all developing economies combined. Once unevenly industrialized with major assets concentrated in Manchuria and the coastal areas, China is now in the process of dispersing industry and transport throughout the country, contributing to the development of a national economy. In the final analysis, the level of China's unemployment and underemployment will depend on the management of the countryside. The goal is to increase non-agricultural activities in the rural areas, develop small and medium sized towns, limit the proportion of laborers involved in crop cultivation, and, of course, increase productivity.

Although Maoist economic policy did not again intervene massively in the rural economy after the end of the Great Leap Forward period of forced commune development (1958-60), agricultural performance did not increase markedly before the introduction of rural reform. In 1978 China was still dependent on imports to feed its population despite technological advancements in seeds, fertilizer, and water use. Moreover, roughly 40 percent of the urban population in 1978 depended on imported cereals and even a larger proportion was dependent on non-grain imports; in fact, China was one of the world's largest importers of edible vegetable oils and raw cotton. In addition, rural income increased only very modestly in the two decades from 1956 to 1978 as modern inputs into agriculture were offset by the adverse effects of the rising man-land ratio. Systemic inefficiencies generated by the emphasis on local self-sufficiency, and the curtailment of rural marketing that precluded efficient matching of agricultural supply and urban demand contributed most to the retardation of effective rural growth.

The most notable achievements of Deng's modernizations to date have followed the introduction of rural reform in 1978 when the 800 million people in the countryside, previously organized in egalitarian communes, shifted to a family responsibility system. Not only did output in grain and basic necessities such as cotton fiber increase, but rural industry burgeoned, representing now 10 percent of total industrial output and employing 20 percent of the rural labor force. The successful expansion of food production and population control programs have permitted the world's largest nation to escape the specter of Malthus and become an exporter of food. Personal income and rural output increases during the rural reform period have been impressive:

- Peasant income has doubled in less than a decade; per capita farm income rose from 134 to 310 Yuan during the years 1978–1983. Increased rural income resulted in a sharp rise in peasant consumption and private housing construction. The sharply differentiated incentive system has changed not only land tenure but the social structure of rural China.
- From 1978–84, grain production grew 4.9 percent as compared to only 2.1 from 1957–78.
- Output of other crops grew still more rapidly as China became a net exporter of coarse grains, soybeans and raw cotton.

These increases were accomplished without a significant burden on centrally planned investment. While state investment in agriculture decreased, the use of rural credit went up. Moreover, increased output was produced on reduced acreage in cultivated farmland through more efficient use of existing resources—in part a result of increased incentives inherent in the family responsibility system. The national self-sufficiency of China, indeed the development of an agricultural export capability, is a major accomplishment; it is of global importance that the PRC, with one-fifth of the world's population, is no longer a burden on world food resources.

While by key per capita income measures China still ranks near the bottom among developing countries, viewed in the historical perspective Chinese human resources are being well used and served in their development process. As the Chinese economy has grown, so have Chinese consumers' expectations—from the income level typical of a developing country where workers and peasants alike worked to buy bicycles, watches, sewing machines and radios, to the current expectation of successful peasants and workers for consumer durable goods such as motorcycles, refrigerators, and television sets.

Although the PRC's post-Mao economic success has been notable to date, it would be even more remarkable if the growth continued unabated to the year 2000. Continuity of the trend toward attainment of the goals for the year 2000 is moored on a number of assumptions and could create a variety of problems which are discussed below.

(1) *Political support of the principles of modernization, reform and openness is likely to continue, even after Deng's passing.*

- The framework of modernization, openness and reform has been broadly accepted, but the specific policies for proceeding through the various stages of change are still being worked out. To assure continuity of reform, political steps have been taken which are intended to stabilize the leadership and provide for smooth succession. Change after Deng seems likely to move toward a more orthodox Leninist political and economic system rather than a revival of radical Maoism.
- While the system will not move toward pluralistic democracy, the Party and State may be progressively less obtrusive, oppressive, and may intervene less in the professional processes of the economic system and its responsiveness to market stimulating forces.
- Surface consensus may mask a lack of resolution of fundamental differences in view. Deng has been successful in eliminating the most obvious and vocal opponents and obtaining a strong consensus for the general framework of economic policies currently pursued. Future reform policies represent wide options consistent with the framework of reforms advocated and implemented by current Chinese leaders led by Deng. However, the consensus may break down as the leadership moves from general to specific policies in the post-Deng period.
- The political succession strategy followed to date appears to be successful. That strategy has consisted of placing potential successors in key posts; reorganizing the Party and State institutions (including military) to provide solid bases of political support; convincing the Party of the need for reform; and reinstituting the Chinese political process to protect leadership from serious challenge and charges that reforms threaten economic stability, cultural integrity, and social equality. However, continuation of political support over the long run may fracture, particularly as the impact of specific reforms becomes evident.
- Attention to the problems of corruption and divergence from an equitable and effective incentive system will need to be continued after Deng's passing to assure the full fruits of modernization are secured.

(2) *The full cost of attaining economic goals by the year 2000 is substantial, though perhaps sustainable.*

- The changes resulting from accelerated economic growth and reform under Deng Xiaoping such as destabilization of the established Communist political economic system, diversification of culture and opening of the society, are no less radical than the political-ideological changes instituted under Mao.
- The cultural and social impact of increasing inequities and changing social status, resulting from progressively differential incentive systems, may be substantial. The economic restructuring or reform process may create an upper and an under class in rural and urban settings that could generate social and ideolcgical backlash.
- The creation of a new managerial, scientific and intellectual elite may not be deemed sufficiently beneficial to justify its full social, cultural and political costs.

(3) *Population pressure may reemerge to swamp production gains.*

- China hopes to stabilize population at 1.2 billion, but it is more likely to grow to 1.4 billion before leveling off in the 21st century. The 200 million difference is critical to China.
- Draconian measures to control births through the demographically hazardous period of high fertility may come into conflict with the natural desire for more children.

(4) *Bottlenecks may arise with diminished returns to inputs, thus slowing real growth.*

- Long-term increases in agricultural output and productivity, albeit difficult, may be sustained through continued incentive effects of decollectivizing land holdings; increased specialization and marketization; continued stimulation from increases in key modern inputs—e.g. mineral fertilizer. However, each of these important sources of past growth in productivity may have diminishing effects in the future.
- Success in rural production will make more important the necessary improvement in the underdeveloped rural infrastructure and marketing systems. Incentives to facilitate marketing are urgently needed—development of rural infrastructure, inland waterways, water supply, power generation, rural road network, storage, refrigeration, and food processing may all be significant for continued improvement in productivity.
- Effectively joining increased supplies in rich rural provinces with demand in urban and other less productive provincial areas will be a challenging, complex process of transport development.
- There are at least two schools of thought on continued potential in Chinese rural economy: 1) *Outside Sources of Growth:* Improvements in the future must come from outside the rural economy; i.e., rural gains have been largely exhausted, now increased state investment is needed to improve transport marketing networks and other ties to the national economy; 2) *Rural Sources of Growth:* Improvements in performance are still possible inside the rural economy; financing may come from reinvestment by rural collectives and peasant households. These views are not necessarily mutually exclusive.

(5) *Success in urban reform will have to resolve inherent dilemmas.*

- Urban reform with its shift from mandatory to guidance planning is more complex than rural reform; the key to effective decentralization is a good profitability measure: one based on prices and costs which reflect relative scarcity and on interest rates and taxes which respond to market forces.
- Shift of decision-making power from the center to enterprises and from the planning bureaucracy to professional managers may be politically easier now while Deng has broad-based support for reform, but, without the concomitant development of rational prices, interest rates and other monetary measures necessary to determine profitability, it will be difficult to evaluate success under guidance planning.
- Continued centralized, mandatory planning in critical sectors such as energy, transportation, and defense, may restrict development of guidance planning. Incremental changes may be effectively made, but the assurance of success through partial reform is currently lacking.

(6) *Restructuring and reform of scientific and research community may not create dynamic environment needed by the year 2000.*

- Early benefits of the closer marriage of research and production must be continued and expanded; otherwise, scientific and technological reform may be of short duration and limited impact.
- New incentive systems must be continuously supported with greater effort and sacrifice to keep up the momentum toward a dynamic and innovative scientific and technological environment.

In its drive toward modernization, China can and does point to numerous successes while, at the same time, showing considerable realism regarding the problems and obstacles which will have to be overcome to assure continued economic growth. How well the PRC does in pursuing modernization will have a far-reaching impact on both China's domestic and foreign policies, and on prospects for peace and stability in East Asia and the world.

I. SETTING

CHINA'S MODERNIZATION: DEVELOPMENT AND REFORM IN THE 1980'S

By A. Doak Barnett*

China has embarked on one of the most ambitious developmental programs in history. Its leaders have set as their target the quadrupling of the country's gross industrial and agricultural output during the final two decades of this century. Their goals encompass much more than growth, moreover. They are strongly committed to the reform of China's economic system. In effect, they are attempting, pragmatically and experimentally, to develop a distinctive Chinese version of socialism, based on a new mix of state planning and "market forces." They also are involving China in the international economy to an unprecedented degree. Proclaiming that their new "open door" policy will continue for the indefinite future, they not only have turned outward to promote foreign trade; they are now vigorously attempting to attract the governments and corporations of the major industrial nations to participate on a large scale in joint ventures, direct investment, and varied forms of economic cooperation in China.

This volume, the sixth in the series of Joint Economic Committee studies of the Chinese economy, examines in detail the most important developments in major sectors of the economy, and the complex political and social as well as economic factors that will affect the course of China's modernization in the 1980s. The authors of the more than fifty essays in the volume are among the most competent and best-informed specialists anywhere on their subjects, and each of their essays includes careful analyses of key issues, as well as basic statistical and other data required for such analyses.

It would be foolish, in this introductory essay, to try to summarize the rich data and argumentation contained in the essays that follow, and I will not attempt to do so. What I will do is give one man's views and judgment on a few of the basic questions that can be raised about the new course on which China is embarked—the reasons for China's new policies, their characteristics, some of the problems and obstacles they face, and their prospects. To deal with large questions in a few words inevitably involves oversimplification. Moreover, as readers will see when they read the detailed essays that follow, because realities in China as elsewhere are complex, even specialists using the same data can arrive at differing judgments. The personal judgments contained in these introductory comments are presented, therefore, more as a guide to questions on which judgments must be made by all interested observers than as a statement of any non-existing "revealed truth" or generally accepted "conventional wisdom" about China's development in the period ahead.

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The starting point for understanding the enormous changes that have been taking place in China since the death of Mao in 1976 must be a recognition of the severe crisis that China experienced during the final decade of the Maoist era. In effect, there was a breakdown of the political system in China during the so-called Cultural Revolution, in the late 1960s and early 1970s. This breakdown not only disrupted the economy at that time; it led many in the leadership—especially ones who had been victimized during the Cultural Revolution—to raise basic questions about past Chinese policies.

The economic problems that faced China in the immediate post-Mao period were not simply the results of the Cultural Revolution; they were more fundamental than that, and some Chinese leaders had come to recognize this fact. Despite notable economic accomplishments during the twenty-seven years from the Communist takeover in 1949 until Mao's death, by the late 1970s it was clear to many Chinese leaders that both the policies of the 1950s, based on the Soviet model of centralized state planning, and the later Maoist policies stressing mobilizational methods and egalitarian goals, had grave shortcomings, and that the systemic problems which had accumulated over more than two decades required major innovations in policies. These problems were basic ones: gross inefficiency and extremely low productivity of both capital and labor due to overcentralized and ineffective planning, bureaucratic ossification, a distorted price system, a lack of effective incentive systems for peasants, workers, or managers, and many other shortcomings. It was recognition of the seriousness of these problems, as well as the traumatic effects of the Cultural Revolution, that created a sense of major crisis in China after Mao's death, and it was this sense of crisis that predisposed many Chinese leaders to consider major policy changes.

Within two years of Mao's death, a new leadership, led by Deng Xiaoping and committed to economic reform as well as development in China, achieved predominance in Peking and began to chart a new course for the country. Many observers had predicted that there would be an extremely disruptive struggle for power in China after Mao died. Actually, by the standards for succession in most Communist or other authoritarian regimes, the succession in China was relatively rapid and smooth. Immediately after Mao's death, China's leading radicals were ousted, and by the time of the Third Central Committee Plenum in late 1978, Deng achieved primacy and took over the reins of power from the transitional leaders who had functioned under Hua Guofeng.

Deng has enjoyed personal supremacy ever since 1978, and he has been the prime mover behind China's new policies—even though he has not assumed the top organizational positions in either the party or the government. However, Deng has not exercised—nor apparently, wished to exercise—the kind of one-man domination over policies that characterized the late Maoist period.

While the leadership in China has shared a broad consensus on the need for new, pragmatic approaches to modernization, there have been significant differences within the leadership on priorities and methods, and debates on economic policy have been continuous. These debates have focused on many questions, such as the degree to which stress should be placed on reforming the economic system or on maintaining economic balance and stability, on the extent to which economic decision-making should be decentralized or centralized, on the particular mix of central planning and "market forces" that China should aim for, and on the lengths to which China should go in "opening its door" to the West.

There has been little evidence of support at the top levels of the leadership for the "Maoist" approach characteristic of the late 1960s and early 1970s—although there may well still be some support for such policies at middle and lower levels of the system. There has been some evidence that a few top leaders may still view the Soviet model of the 1950s as their ideal, and might be predisposed, if they were able to do so, to move the Chinese system towards a higher degree of centralized—and, hopefully, "better"—state planning; however, such a viewpoint, to the extent that it exists, has not shaped the basic direction of policy in recent years.

The most important policy differences since 1978 have been between the major reformers, led by Deng Xiaoping and his closest supporters, including Party General Secretary Hu Yaobang and Premier Zhao Ziyang, and more cautious leaders associated with Chen Yun and his closest supporters (who have been labeled by some as "adjusters" or conservatives, but might well be labeled "cautious reformers"), who have emphasized the need for control, balance, and stability in the economy. The latter group has had a large influence on economic policy in recent years as China has undergone a prolonged period of "economic readjustment," and Peking's overall policies have, in the recent period, represented a series of compromises between those pushing for reforms and those stressing stability. However, the basic thrust toward reform has been sustained, and many major changes in China's economic system have already occurred and continue to occur.

Deng has proven to be a remarkably skillful political leader, able—from a position in the background rather than the foreground of the leadership—to build coalitions to support policies that have moved China steadily in the direction of his vision of modernization.

The breadth of the reform efforts now taking place under Deng's aegis is impressive.

Politically, many steps have been taken to try to stabilize the leadership and lay a basis for a smooth succession after Deng; to retire older leaders and bring about a generational change by appointing to key positions younger, better educated, and more professionally competent specialists; to evolve a more systematic, rational decision-making process with a larger input from experts in relevant fields; to make full use of China's non-party as well as party intellectuals and technicians; and to carry out broad reforms through restructuring of the bureaucracies. The reform efforts also have involved a significant, even if still limited, political "liberalization" (though not to the extent of tolerating open dissidence); a cultural thaw that has allowed a revival of interest in China's past and greatly broadened contacts with the outside world; and, most important, a great increase in the flow of information of all sorts in China, of frank discussion of the real problems facing the country, and of informal debate on the policies needed to cope with these problems. The leadership also is taking steps to expand and improve the quality of education in China and to accelerate the development of science and technology. It is building, gradually, the foundations of a modern legel system, although at the same time it is clamping down severely on corruption and violent crime in ways that raise questions about the net effects of the new trend toward legalism. The leadership also has taken some limited steps to broaden grass-roots political participation.

What have been the consequences of all these developments? The results have varied. In some cases, the effects are already visible and significant; in others the process of change has obviously just begun.

Deng appears to have been remarkably skillful in arranging for his own succession, placing men who share his vision of the future into key Party and government posts and helping them gradually build their own bases of support. Of course, successions in authoritarian regimes are inherently unpredictable. Nevertheless, with the groundwork for the succession already laid, the prospects now appear reasonably good that there will be continuity in both leadership and policies in the period ahead after Deng goes.

The improvements that have taken place in the policy-making process have been notable and real. Decisions are arrived at in a much more orderly and systematic fashion than was the case in the late Maoist period, and policies are now based on more considered analysis of problems and policy options, and greater information about problems, than was the case in the past.

Generational change in the leadership at all levels is proceeding gradually—despite the resistance of many older leaders who have no desire to be retired—and in both the Party and government younger and more competent people are steadily being placed in responsible posts.

How much effect the effort to restructure the bureaucracies has had is unclear. On paper, the changes have been substantial, but in this field there is evidence that suggests the changes may be less than meets the eye, in some respects.

The role of intellectuals clearly has improved, and their talents are being used more effectively than in the past. Yet, it is clear that there is resistance from old Party functionaries at lower levels of the regime to the new policies, and neither China's top leaders nor its intellectuals are satisfied that current policies towards intellectuals are being adequately implemented.

In the fields of science, technology, and general education, definite progress is being made, but China has only begun to fill the gap in essential skills that resulted from the chaos in education and research in the late 1960s and early 1970s. It will be many years before this can be accomplished.

Some progress is being made in building a legal system, with priority being given to adoption of laws regulating economic activities. However, in the legal field, China has an enormous way to go, and it will not be easy to overcome long-standing Chinese traditions, which have stressed rule by men rather than by laws and, more recently, Party dominance of legal institutions.

The cultural thaw in China has been real, and it has had stimulating, liberating effects on much of society. Moreover, even though there have been strict limits to political "liberalization," the loosening of political control, the increased flow of information from foreign as well as domestic sources, and the increase in the open and frank discussion of problems and policies, have changed the nature of political discourse in China in many respects.

Ideology in its Marxist-Leninist-Maoist form is now much less salient in Chinese society, and much less intrusive in individual lives, than at any time since the Communist takeover in 1949. Clearly, ideology continues to influence thinking and action, but it imposes fewer constraints on either than was the case in the past, in part because the content of ideology is now being continuously reappraised and redefined. Today, patriotism, appeals to the traditional national goals of "wealth and power," a pragmatic emphasis on problem-solving, and appeals to individual and family self-interest, appear to be in many respects the main influences on the behaviior of both leaders and the population at large.

The net effect on the political system of all these changes has been substantial. The changes do not point towards the emergence of China as any kind of pluralistic democracy in the Western sense, and there is little possibility that China will move very far in such a direction in the foreseeable future. The Chinese political system is, and will continue to be, basically authoritarian. Nevertheless, the changes since the late 1970s have been important and have made the system much less totalitarian than it was during the Maoist period. The Party and state are now much less intrusive, and less oppressive, then in earlier years, and ordinary Chinese now are able to live more "normal" lives, much less subject to ideological and political pressures than in the past. It is now legitimate for ordinary Chinese to pursue personal goals, not just collective ones, and the opportunities for them to do so have steadily expanded.

Political reform has been, in may respects, important in its own right to China's post-Mao leaders; they have been determined to make changes that will minimize the possibility of any recurrence of the excesses of one-man rule, ideological extremism, and the intense class struggles characteristic of the last years of Maoist rule. However, probably the main motivation for the political changes has been the leadership's recognition that, to achieve their goals of economic development and modernization, changes are required in both the political and economic systems in China, and such changes are linked in many respects.

The fundamental goals of the present leadership, above all, are economic. Really for the first time since 1949, the leadership is giving clear priority to economic development over any other ideological or political objectives, and has recognized that, to achieve sustainable economic growth, there must be basic reforms of the economic system, and that economic reform must be part of a broadly based modernization program encompassing the society as a whole.

The eight years since Mao's death constitute a relatively brief period in which to judge the course of economic reform and development in China, and even in this period there have been significant zigs and zags in policies, and both spurts forward and retreats in the process of economic reform. These can be explained in part by the differences in views and the debates within the leadership, resulting in compromises and shifting coalitions. However, differences over policies in this period should not be exaggerated; they have been less important than the basic shared consensus on the general direction of desired economic change. Moreover, many of the zigs and zags are explainable in terms of the learning process that the Chinese leadership as a whole has been going through as China has traveled uncharted paths. The fundamental approach of the leadership under Deng has been to introduce new policies experimentally, then to broaden their application, and to adjust them—repeatedly, if necessary—to take account of changing realities or perceptions of reality, and to cope with new problems and unanticipated consequences of policy changes as they arise.

The first step toward a new modernization program was taken immediately after Mao's death, during Hua Guofeng's brief period of ascendancy. At that time, the Chinese leadership, in 1978, embarked on a hastily prepared, ill-conceived, developmental "great leap." Within a few months, however, many Chinese leaders recognized the impracticality of that program, and less than a year after it was started, a retreat began. The huge capital investments made in that period had fiscal and monetary effects that created serious inflationary pressures and budget deficits, which alarmed the Chinese leadership and strengthened the influence of those favoring cautious policies stressing economic stability and only very gradual reform. The views of such people were crucial in the decision to adopt a policy of "readjustment, restructuring, and consolidation" in 1979. Originally defined as a policy to be implemented for three years, the period of readjustment has been repeatedly extended.

Nevertheless, over time, steps toward "restructuring"—i.e., towards systemic reform—have occurred in many areas, and as a result the economic system has in fact been undergoing a process of significant change. Throughout this period, there has been a broad consensus within the leadership on certain matters: that priority should be given to civilian economic development over military modernization; that greater attention should be given to agriculture and to light industry in comparison to heavy industry; that a serious effort should be made to increase production of consumer goods, improve services to the population, and raise living standards; that in heavy industry priority must of necessity be given to eliminating key bottlenecks, especially in energy, transportation, and construction materials.

Actual policies, as they have developed, have been less than fully consistent with these generally agreed upon priorities. After an initial cutback, for example, investment in heavy industry again started to rise, and investment in agriculture has been less than the original priority would seem to have indicated. Nevertheless, the restraints imposed on military spending, the new emphasis on agriculture and light industry, and the great stress on the need to solve energy and other key problems have had a major effect on the economy and continue to be of basic importance.

In many respects, there also has been a fairly broad consensus in this period on what some of the directions of systemic reform in the economy should be. Despite continuing differences on how far and how fast to go in trying to reform the economic system, and in fact on exactly how to proceed in implementing specific reform policies, there has been—and continues to be—fairly broad-based agreement on the need to improve central planning while restricting its scope; to decentralize a considerable amount of economic decision-making to local governments and individual enterprises; to devise more effective incentive systems through wage adjustments, bonuses, price adjustments, and other steps to encourage individual incentives for workers, peasants, and enterprise managers; to rely more on the "market," not only allowing an expansion of local free markets, but also encouraging a proliferation of other commercial channels outside of the state trading network and central plan; to encourge the development of more cooperative (as contrasted with state-owned) urban enterprises; to tolerate the growth of some small-scale individual private enterprises, especially in the service sector; to adjust prices and revise taxes in ways that can increase incentives while maintaining overall central control; and to place much greater emphasis than in the past on expanding foreign economic relations through increased exports and imports, foreign borrowing, and the encouragment of foreign investments and joint ventures in China.

Some steps have been taken in all of these areas, and many already have had favorable effects on the Chinese economy. At the same time, many changes, while helping to cope with some problems, have created entirely new problems. The process of economic reform is extremely complex, and it is still in its early stages. It is proceeding incrementally, and its ultimate outcome is not yet clear by any means.

The sector of the economy in which reform has been most dramatic, and the effects most spectacular, has been agriculture. In the years since 1979, the commune system has been abandoned. Under the new "responsibility system," actual management of farming has been decentralized in most of the country down to the level of individual households. In practical terms, this has meant a return to family-based farming. Families are assigned a portion of land to farm, they sign contracts under which they commit themselves to produce a given amount of crops for the state, and then they themselves own and dispose of output above that contracted amount. (The communes exist, but they have much more limited functions than in the past; in many places their main function is development of local industries.)

The effects of the decollectivization that has taken place in China have been extraordinary. Chinese agriculture has grown far more rapidly in recent years than anyone believed possible. There has not only been a great increase in the overall value of agricultural output; a very significant diversification of agricultural production has taken place, with increased attention to crops other than grain and to animal husbandry, fisheries, and other non-crop activities. Moreover, so-called "sideline" activities have greatly expanded, and there has been a rapid growth of both local industries and commerce in rural areas. During the recent period, agriculture has been the most dynamic sector in the entire Chinese economy—something few would have predicted before the new policies were introduced.

A number of factors have contributed to the rapid growth in agriculture and overall success of the regime's new agricultural policies. Favorable weather during several successive years has been a factor. Adjustments in agriculture prices have also been important. There also has been an increase in some inputs into agriculture, such as fertilizer, which has had a favorable impact. However, without any doubt, the increased incentives given to peasants under the "responsibility system" have been of crucial importance. The new policy has helped to release deep-rooted entrepreneurial impulses among China's peasants that long have been suppressed.

Despite the dramatic short-run effects of reforms in agriculture, the long-term prospects in this sector are less clear. The Chinese cannot expect to sustain the high rates of agricultural growth achieved in some recent years—eight to nine percent—and it is possible that the key role that increased incentives have played in recent successes will be less effective over time. Almost certainly, the Chinese will be compelled, at some point in the future, to invest much larger resources than they have been willing to invest to date in modernization of agriculture. It is also possible that they will discover that, even with the responsibility system that gives basic farming decisions to the family unit, they will need to develop voluntary cooperative organizations in the countryside to deal with problems that are better coped with collectively than individually; there are some signs that experiments in voluntary cooperative organizations already are taking place in certain areas of China.

The changes that have taken place in China's rural economy have had a very profound effect on the four-fifths of China's population that still lives in the countryside. However, the one-fifth of China's population that lives in urban areas have not, to date, seen such far-reaching changes. Reform of the industrial and urban economy, encompassing the most modern sectors of the Chinese economy which produce more than two-thirds of China's goods and services, have proven to be more difficult, and slower, than reform in the countryside. Nevertheless, there have been significant changes, some of them with fairly far-reaching effects.

Greater authority has been given to both local governments and individual enterprises to make major decisions. One measure of this is the fact that now roughly one-half of all capital construction investments in China are outside of the central state budget. In the past few years, there have been several adjustments in wages, and a major effort has been made to increase incentives for workers through revised bonus systems. There has been widespread experimentation with profit-sharing systems designed to give greater control of resources to individual enterprises, and, over time, the amount of profits retained by enterprises has steadily increased. Recently, the central authorities have begun introducing a system of taxation that will replace profit-sharing, which the leadership claims will both enhance the incentives for enterprises and increase revenues to the center. Efforts have been made to try to strengthen the authority of managers and technicians within individual enterprises, and to limit the intervention into economic matters by local Party functionaries. New management training programs have been instituted on a fairly broad scale, and experiments of many kinds are underway to improve the efficiency of enterprise management. There has been a fairly rapid growth of cooperative enterprises in urban areas, and the regime is not only tolerating but actually encouraging the revival of small-scale enterprises in various service fields.

There is considerable evidence to suggest that the steps toward reform in urban as well as rural China have stimulated latent entrepreneurial impulses of a kind that have been very strong in China in the past. Despite the fact that the Chinese economy remains, in basic respects, a "command economy," there are now important and growing elements of competition being built into the system, not only in the competitiveness of the small cooperative and private sectors of the economy, but also in the growing competition within and among state-owned industrial and commercial enterprises, which still account for most of China's economic output.

In October 1984, the Chinese Communist Party Central Committee adopted an important decision on the reform of China's economy, which marked a new stage in the process of changing the urban and industrial economy. It calls for fairly far-reaching steps to restrict central planning and to decentralize more decision-making to the enterprise level, and, most important, to start major reform of the price system (which requires changes in the existing system of subsidies for the urban population as well as of the present wage and labor system). This decision was heralded as the beginning of comprehensive reform of China's urban economy, comparable in scope to the reforms already carried out in rural China.

Even though the steps taken towards reform already have had some effects, however, the major tasks of industrial and urban reform still lie ahead. Probably the most difficult economic problem facing the Chinese leadership in the period immediately ahead is how to reform the country's unrealistic price system. Peking's leaders recognize that price reform is essential, but they also realize, correctly, that reforming the price system will be a complicated and risky process, and they are still debating how to do it. Price reform is extraordinarily complex because it involves virtually every other aspect of the economy, and changing the price system will require a wide range of other changes, for example in the system of subsidies that now ensure low food costs, rents, and fuel costs to urban residents, and also in the basic labor and wage systems in urban China. The process of price reform is risky because it could trigger inflation that would be very destabilizing for the economy, and increase the danger of social and political unrest. Nevertheless, reform of the price system will be essential, eventually, if the regime's general program to reform the industrial and urban sector of the economy is to succeed.

Until the price system is changed, reform in the industrial and urban sector will continue to lag behind reform in agriculture. However, there is another area in which enormous, rapid change has occurred, with far-reaching effects, since the late 1970s—namely, the field of foreign economic policy and China's relationships with the world economy. During most of the decade before Mao's death, China's dominant leaders appeared to be deliberately isolationist, and in pursuit of "self-reliance" China cut its ties with most of the rest of the world. Since 1978, there has been a complete turnabout in China's policies in this respect. The present leadership not only stresses the importance of expanding trade, and especially the need to import advanced technology; they have begun borrowing abroad (albeit still moderately and cautiously), have opened up China to foreign investments and joint ventures, and have created a number of special "economic zones" in which preferential treatment is granted to foreign businesses. Since adoption of the "open door" policy in the late 1970s, the regime's emphasis on foreign economic relations has steadily grown.

China's foreign trade has been increasing during these years at a rate substantially above that of China's overall economic growth. Foreign investors have been cautious about the establishment of either joint ventures or wholly owned foreign enterprises in China; nevertheless, over time, these have gradually increased, especially in the special economic zones. And, in the last year or two, major Western companies have increasingly become involved in large-scale projects for the development of oil, coal, and other basic resources in China. In addition, the World Bank and other international economic institutions have embarked upon large cooperative programs with the Chinese.

China's present leaders stress, convincingly, that their "open door" policy is an integral part of, and essential to, their overall modernization program, because, they say, they recognize that they will need foreign scientific knowledge, capital, and technology for the indefinite future. They assert, moreover, that not only is this a long-term policy, but that they intend to open steadily up the entire country for foreign and joint ventures. (The recent decision by the leadership to extend to fourteen major coastal cities in China many of the special provisions now in effect in the four original special economic zones was a major step in this direction. However, the subsequent decision to reduce the number from 14 to 4 revealed the difficulties of opening the country.)

All of these developments have moved China along a path leading towards an unprecedented degree of involvement in the world economy. There is little doubt that this will reinforce as well as support and add to the pressures for, systemic economic change within China. At the same time, it will doubtless create difficult new problems for the Chinese leadership, since the complexity of implementing national plans is likely to increase as the impact of world market forces on the Chinese economy increases, and the foreign impact on China will have side effects considered undesirable by many Chinese.

No one, including the Chinese themselves, can accurately predict exactly what the Chinese economy will look like if and when all the reforms now being initiated or contemplated are actually carried out, but the direction of change is toward a mixed economy with reduced central control and planning and increased scope for market forces. How far the Chinese will move in this direction is not yet clear. At present, Chinese leaders are eclectic. They are trying to borrow what is useful from the experience of many other countries, including ones such as Hungary that have gone fairly far down the road of "market socialism," but they also are borrowing from the experience of many other countries including some of the most successful capitalist economies of East Asia, such as South Korea, Taiwan, Hong Kong, and Singapore. However, Peking's leaders recognize that China cannot follow anyone else's model. They intend to evolve their own unique mixture of policies and systemic reforms.

Nevertheless, the overall trend of policy in China is likely to be in the direction of reduced central planning and increased reliance on market forces, or, in other words, towards a modified socialist system that might deserve the label of "market socialism." So far only the first steps have been taken in this direction, and there will be some large obstacles, and resistances, to moving very far along this road. Nevertheless, there will probably be strong, continuing pressures to move in this direction, in order to increase the efficiency and productivity of the Chinese economy.

Despite the fact that the process of reforming the economic system of China is still in its early stages in many respects, the overall rate of growth of the Chinese economy has been respectable and is increasing. In the period immediately following Mao's death, during 1978-79, the rate of growth in China was clearly too rapid, and resulted in serious budgetary deficits, inflationary pressures, and sectoral economic imbalances. The policies of economic "readjustment," adopted to cope with these problems, slowed the rate of growth. However, during the past two years, the rate has again accelerated, resulting, according to China's official statistics, in a nine percent rate of growth in national income in 1983, and a rate during the first half of 1984 that was even faster.

While the recent increase in China's rate of growth has been impressive, it highlights continuing problems that face the Chinese economy. Actually, the rate may have approached a level that the leadership considers more rapid than is desirable; it is about double what the central planners had projected for this period. Although increased agricultural productivity has been one explanation for the rising rate of growth, another has been an increasing rate of growth in industry due not primarily to increasing efficiency or productivity but to continued high levels of investment. What the Chinese leadership hopes to achieve is a substantial rate of growth (the goal of quadrupling production by the year 2000 requires an average rate of perhaps seven to eight percent growth a year from 1980 to the end of the century), but through increased productivity rather than extremely high rates of investment. So far, they have not been able to achieve this, and in order to achieve this they will have to go further than they have on the road towards industrial and urban reform.

It is beyond the scope of this brief essay to dicuss all the specific economic problem that the Chinese must cope with in the rest of the 1980s—and the 1990s as well. However, it is essential at least to mention two, one of which is of crucial importance in the short run, and the other of which is of fundamental importance for the long run.

One of the most serious specific bottlenecks that could complicate China's development in the next few years could be a shortage of energy. The problem is not one of resources; China has among the largest reserves of energy resources of any country in the world. However, China faces a serious problem during the next few years of expanding its output of energy, and improving the efficiency of its use of energy, in order to sustain current rates of growth. During the 1960s and much of the 1970s, China expanded its energy production at a very rapid rate; then the rate greatly slowed. Not long ago, the outlook appeared to give cause for considerable pessimism, and some informed analysts predicted that severe energy shortages would probably limit China's potentialities for economic growth for much of the 1980s. It now appears, however, that the Chinese are coping more effectively than such observers felt possible with what they themselves acknowledge to be a fundamental energy problem for the short run.

Even though energy output has risen very little in the past few years, the Chinese have been able to sustain substantial rates of economic growth by increasing the efficiency of energy use. This has been possible, in part, because of the incredibly inefficient and wasteful use of energy in the past. During the past two years, also, the output of energy in China has again begun to rise, earlier than many analysts expected. Moreover, China has initiated, in cooperation with numerous foreign corporations, a wide range of ambitious development projects in energy—expecially in offshore oil and coal, but also in hydropower and onshore oil—that should being to show results before the end of the decade. The bottleneck in energy—and the related bottleneck in transportation—will continue to pose a questionmark for China's developmental program for at least the rest of the 1980s, but recent trends suggest that the Chinese may be able to cope with problems in this field somewhat more successfully than many believed possible a short while ago.

From a longer run perspective, population problems pose one of the largest questionmarks about the entire future of China's development. No other political leadership in history has had to satisfy the needs of over a billion people. Here too, however, despite the enormity of the problem, the outlook is by no means totally bleak. The present family planning program in China, which defines a one-child family as an ideal and uses a variety of positive and negative sanctions to limit births, is more vigorous and effective than any other large country's birth control policies. Moreover, the leadership's efforts to limit the population have clearly had significant results; these efforts reduced the rate of net annual population increase from about two percent to roughly 1.2 percent before the rate again began to climb, to roughly 1.4 percent. However, the effects of policies aimed at limiting population growth have been less effective in rural areas, where most Chinese still live, than in urban areas; and the recent reforms in agriculture have created new incentives for families to increase rather than reduce their size. Moreover, if present population policies succeed, the resulting changes in the structure of the population will create a host of new economic and social problems.

China's leaders still hope that they can stabilize the country's population at around 1.2 billion. It is possible, however, that even under optimistic assumptions the population could grow to a level of around 1.4 billion before stabilizing. That difference—200 million people—is more than the population of all but a few major countries. Whether China's population stabilizes near to the lower level or to the upper one obviously will have a very large impact on the scope of a great many other problems with which Chinese leaders must cope in the years ahead.

Analyzing recent trends and current problems is considerably easier than predicting the future. What will the Chinese economy—and Chinese society—look like at the end of the 1980s, or at the end of the century? One is compelled to say: "it depends." Looking back at the nine years since Mao's death, a good case can be made that China has done better in many respects than most observers expected. However, looking ahead, one has to say that how well China does in the rest of the 1980s, and in the 1990s, will depend on how well Chinese leaders are able to cope with a wide range of problems, and especially with certain critical, fundamental problems. China has yet to demonstrate that it can succeed in reforming its price system and its broad industrial and urban economy, or that it can really solve its energy problem, or that it will be able to keep population growth under control. At least partial success in these critical areas will be essential for its overall modernization program to succeed. If, however, China is able to achieve a reasonable degree of success in coping with such problems, it may well be able to come close to its target of quadrupling output by the year 2000, and by the year 2000 it may have an economic system substantially different from the one that exists today.

Success will depend on many variables in addition to purely economic ones. It will depend fundamentally on whether China can maintain reasonable political stability and continuity of policy; on whether economic performance keeps up with—or at least does not lag too far behind—rising expectations; on the state of public morale and the degree of confidence that ordinary Chinese have in their leaders and policies; on the ability and willingness of leaders to continue giving priority to civilian rather than to military requirements; on the avoidance of war and other costly foreign policy involvements; and on the success that the Chinese are able to achieve in developing broad foreign economic cooperation to support their modernization program. There is room for differing assessments of Chinese prospects in all of these areas. Nevertheless, there is a basis for cautious optimism in respect to most, if not all, of these areas of uncertainty.

Does it make any significant difference, from the perspective of the United States and other countries, whether China's reform and development policies succeed or fail? It clearly does.

The generally pragmatic, reformist policies pursued under Deng's leadership at home have been paralleled by generally moderate and internationalist policies abroad. In the recent period, Chinese leaders have stressed that, in order to pursue their modernization program, they need a peaceful international environment, and they have acted as if they mean this. Not only have they expanded their foreign trade and economic cooperation abroad, but increasingly they have "normalized" and broadened their ties with countries throughout the world and have steadily increased their involvement in a wide variety of international organizations and activities. (China's policy toward Viet Nam has been an exception to the general trend, due to complicated historical and geopolitical factors.)

There has been a close linkage between China's new policies at home and abroad. They have been mutually reinforcing. It seems likely, moreover, that continuation of present trends [illegible] foreign policy will depend at least in part on continuity in domestic policy—and vice versa.

In sum, whether or not China succeeds in its modernization program—or the degree to which it succeeds or fails—is likely to have fairly far-reaching effects, not only on the one-fifth of [illegible] world's population that lives in China, but also, because of the linkage between China's domestic policies and foreign policy, upon the prospects for peace and stability both regionally in East Asia and globally.

For some years, the U.S. government—wisely—has explicitly and publicly asserted that it is in the American interest for China to succeed in its modernization program. It is important that this basic judgment be reflected in concrete U.S. policies. Obviously, as the Chinese fully recognize, the success or failure of their modernization program will depend above all on their own policies. Nevertheless, the policies pursued towards China by the United States and other major nations—and the kinds of broad relationships that develop between China and the international community—clearly can make a difference.

Both the Congress and the Executive Branch should, therefore, assess on a continuing basis the course, the problems, and the prospects of China's modernization program, and the potentialities for U.S.-China trade and other forms of economic cooperation. They should also assess, on a continuing basis, whether or not new administrative or legislative action is desirable to promote expanded scientific, technological, and economic ties of mutual benefit. The basic criteria for judging possible U.S. actions must, of course, be whether they serve U.S. national interests, broadly defined. Under existing circumstances, one basic premise should be that, in general, support of Chinese modernization is consistent with and supportive of U.S. broad national interests. There are now, and will continue to be, specific areas where conflicts of American and Chinese economic interests will be inevitable and troublesome. However, the areas in which the potential for mutually beneficial trade and economic cooperation is great are, on balance, far more important than the areas in which economic interests are likely to conflict or diverge.

ECONOMIC POLICY AND PERFORMANCE

By Robert F. Dernberger*

CONTENTS

Page
Summary 15
Introduction 16
The Problem: Testable Hypotheses 20
The Soviet-type Economy 21
Inevitability of the Economic Reforms? 24
Current Status of the Reforms 28
The Reforms and Economic Performance 35
Political Support for the Economic Reforms 40
Conclusion 43

SUMMARY

The Chinese have been engaged in an almost continuous process of experimentation with economic policy changes over the past five years for the purpose of significantly improving efficiency, productivity, and growth in the Chinese economy. Each cluster of policy innovations or major speech by a political leader on the economic reform programs sets off a renewed interest among Western observers in China's "transition to market socialism," or even "restoration of capitalism." Although the current leadership is making an effort to encourage this enthusiastic responese to their policy moves, most knowledgeable China experts are more cautious in their attempts to predict the final outcome of the current program of economic reforms in China. Certainly there exists in the theoretical literature a wide variety of hypotheses about the inevitable need for reform of the traditional Soviet-type economy. In addition, the current program of economic reforms in China has created several forces which will help sustain a continuation of current efforts at economic reform. Nonetheless, the lessons of the history of Soviet-type economies throughout the world, and the evolution of the political economy in China over the past three decades, are reason enough for using caution in interpreting current expressions of intent into future accomplishments.

In any event, these attempts to predict the future of the economic reform program in China can only yield hypotheses about the future that are untestable with the evidence available to us at the present time. That future, however, is certain to be determined, in part at least, by events or develeopments that have already taken place and can be analyzed on the basis of the evidence already available to us. In this essay, we have selected three aspects of the

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current developments in China's political economy that can inform our judgements about the future in a major way. In the first of these, with regard to the extent to which the economic policy changes have already introduced a new and different economic system in China, we show that despite the many changes that have been introduced, the Chinese economy still retains the basic institutional organization, functional operations, and problems, or results, of a Soviet-type economy.

Second, the economic policy changes do coincide with a definite improvement in the macro-indicators for the Chinese economy; we point out that these results are largely due to performance in the agricultural sector which can be explained by non-replicable or one-time changes in prices, cropping patterns, and weather. While the institutional reorganization of that sector obviously also contributed to the improved economic performance in agriculture, the problems that have plagued the non-agricultural sector continue to exist and will be far more difficult to resolve by means of a similar reform movement at the local level.

Finally, the most common mistake made by China experts in the past is the readiness with which they accepted the surface consensus among the leaders as a sign of the fundamental resolution of any differences in their views. This is especially true of the current situation, when Deng Xiaoping has been remarkably successful in eliminating his most obvious opponents and obtaining a very strong consensus for the *general* framework of the economic policies currently being pursued. We argue in this essay, however, that consensus should not be accepted as unanimous support for each and every policy change included within the generally accepted program of economic reform. Rather, the differences among the current leaders on particular policies probably vary widely, allowing for a wide range of possible outcomes from the current program of economic reforms—ranging from a somewhat modified Soviet-type economy all the way to a significantly modified Soviet-type economy.

In other words, China's economic system in the future cannot be predicted with any certainty at the present time and a wide range of options remains open.

INTRODUCTION

Few could deny the major changes that have occurred in China's economy as a result of the program of economic reforms over the past seven years. Compared with the pre-1978 period, China's foreign trade participation rate has increased significantly, while direct foreign investment is not only allowed, it is encouraged. In fact, special economic zones have been created where direct foreign investment is given special tax breaks and other benefits. Fourteen coastal and up-river ports have been allowed to use similar enticements to obtain direct foreign investment in the special economic development areas they are creating for this purpose. Material incentives are being relied upon to stimulate the work force, population, and local authorities to promote China's economic development "from below," and these incentives rely upon increased revenue-sharing, profit-sharing, and bonuses. To transmit this increased command over income by the local producers into material benefits, open consumerism is not only approved, but encouraged, while decentralized investment activities, foreign-trade participation, long-distance transport and trade is also allowed. In the cities, unemployed workers are urged to create cooperatives or set up private businesses to provide goods and services demanded not only by consumers, but by state enterprises as well, and to sell those goods at "controlled," but relatively "free," market prices. Cooperatives in production, credit, transport and trade activities that had been taken over and run by the state authorities in the pre-1978 period are being restored to their rightful owners—the members of the cooperative. In addition, even enterprises in the state sector are now, on an experimental basis, being allowed to sell stock to private investors, i.e., workers in the enterprise. In the countryside, peasant households are encouraged to engage in sideline activities or specialize in non-crop production activities, with some households even allowed to withdraw from the collective sector for that purpose. Although Mao has been dead less than ten years, the Chinese have reacted to the renewed opportunity to engage in "capitalist profitmaking" with a vengeance.

This obvious flourishing of roadside stalls, streetcorner vendors, entrepreneurial peasants running "worm farms," or a shrewd cityboy who takes over a factory losing money and turns it into a winner by means of capitalistic work rules, marketing practices, *and* government permission—all these examples have captured the imagination of Western observers, some of whom have loudly hailed the return of "capitalism" to China. Even more cautious and serious observers and journalists believe the resolution on reforms in the urban-industrial sector adopted and released by the Third Plenum of the 12th Central Committee (CCP) in October, 1984, clearly signals the adoption of a market socialist economic system or that market socialism is just around the corner.[1] These interpretations often are encouraged by the Chinese themselves, and this is especially true in regard to the decision of the Third Plenum of the 12th Central Committee. Before the decision was adopted, several Chinese leaders (i.e., Deng Xiaoping, et. al.) were informing Western visitors that it would mark a new stage in urban-industrial reform, just the same as the decisions of the Third Plenum had led to a new era of economic reform in the agriculture sector.[2]

A careful reading of the decision of the Third Plenum of the 12th Central Committee (CCP) on reform of the economic structure, however, is very revealing in regard to the present situation of economic reform in the urban-industrial sector, no matter where the decision may lead some time in the future. First, the decision is a clear statement that, unlike the agricultural sector, the reform efforts have encountered considerable difficulty in removing the excessive centralism of the bureaucracy, the departmentalism of that economic bureaucracy, and that bureaucracy's failure to pay attention to economic levers in its decisions. In other words, the targets of economic reform in the urban-industrial sector over the past seven years still exist and these "defects in the urban economic structure that seriously hinder the expansion of the forces of production *are yet to be eradicated.*" (P. K2, emphasis added by author.) The main purpose of the decision of the Third Plenum is to announce most emphatically that it is Party policy to carry out these reforms *introduced in the past* and that cadre at all levels both in and out of the Party must devote their efforts to this cause.

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[1] "Central Committee Communique" and "Text of Decision on Economic Reform," *FBIS* (Foreign Broadcast Information Service), 22 October, 1984, pp. K1–K19. Unless otherwise noted, the quotes in the text in the paragraphs which immediately follow are taken from this source.

[2] Some knowledgeable students of political developments in China believe these "leaks" to the West were based on an original draft of the resolution that indeed was much more radical, i.e., greater movement away from the traditional Soviet-type economy in the direction of market socialism, than the version adopted and released by the Third Plenum. The explanation given by these experts for the revision is the need to achieve a consensus and gain the support of such influential leaders as Chen Yun for the Party's official backing for the economic reforms. See several unpublished papers by Kenneth Lieberthal.

The remainder of the document reviews the reform measures already adopted, along with many normative generalities of a hoped for future. The important point is that most socialist planners could live with, and even support, these reforms. In reference to the three basic principles of a Soviet-type economy,[3] the decision clearly states a "Socialist economy practices a planned economy on the basis of public ownership of the means of production" and "this is one of the fundamental indicators of the supremacy of a socialist economy over a capitalist economy." (P. K7) The purpose of the reform, of course, is to give enterprises greater flexibility in organizing their activities so as to achieve greater efficiency, and the enterprise is to be granted greater independence "on the premise of following the state plans and subjecting itself to state control." (P. K6) "To make the economic activities of all enterprises conform to the overall requirements of economic growth, the socialist state institutions must manage, inspect, guide and regulate the activities of the enterprises . . . through planning and by . . . administrative means." (P. K6) In addition, the state will "appoint and remove the leading members of the enterprise," "decide on the establishment of enterprises," and—most important—their changing product lines, their merger with other enterprises, or their going out of business. (P. K6)

Finally, to make sure everyone understands, the document recognizes that there will be a variety of commodities—those under mandatory planning, those under guidance planning, and those subject to market regulation. Nonetheless, the Chinese economy is "a planned commodity economy, not a market economy." (P. K8) Commodities "subject to market regulations are confined to *certain* farm and sideline products, *small* articles of daily use and labor services in the service and repair trades, all of which play a *supplementary* . . . role in the national economy." (P. K8, emphasis added) The document does call for continued efforts to shift more commodities under planning from the category of mandatory to that of guidance plans.[4] But this shift in emphasis has been called

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[3] The three basic principles of a Soviet-type economy (state ownership of the means of production, the planned allocation of resources and distribution of commodities, and a system of administered prices) are discussed in the next section of this paper.

[4] The attempt to obtain a clear explanation of the difference between "mandatory" and "guidance" planning from representatives of the Economic Commission and the Planning Commission during a recent (December, 1984) visit to China was a frustrating experience. Everyone we met with emphatically supported the move from "mandatory" to "guidance" planning, but precise definitions of what this meant varied widely. As a result of these discussions, I believe manda-

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for in the past, and in a statement by the State Planning Commission released about the same time as the 12th Plenum, the number of industrial products under mandatory planning and state price controls is still 120.[5] Although the State Planning Commission hopes to cut the number to sixty in the coming year (1985), any list of the sixty most important industrial commodities still would represent the lion's share of industrial production if both the output of the commodity itself *and* the output of commodities which relied upon the planned commodity as an essential input were included.[6] Other socialist economies, including China in the early 1960s, have retained the Soviet-type economy during periods of liberalism when the number of commodities included under mandatory planning fell below twenty-five. In any event, there is nothing in the document adopted by the Third Plenum of the 12th Central Committee that indicates the abandonment of state ownership of the means of production or central planning in the present or the near future.

As far as the administered price system is concerned, the document does discuss two areas requiring reform, but makes no mention of reforming the manner in which prices are determined in China. The prices of minerals and raw and semi-processed products must be increased and the selling price of the farm and sideline products must be raised above their state purchase price. These periodic adjustments in the state's administered price structure occur in any Soviet-type economy and, unfortunately, have been postponed far too long in the case of China. Not all prices in a Soviet-type economy are set by the state and, as with plans, there are commodities which have mandatory, administered prices; others with prices that can vary within limits or are subject to guidance price limits; and certain commodities and certain types of transactions for which the prices are free to be set by the buyer and seller. Again, as with planning, the document of the Third Plenum calls for a shift in the scope of commodities and transactions of these three types of prices, reducing the scope of administered prices and increasing the scope of variable or free prices. Administered prices, however, will continue to apply to the commodities under mandatory plans and this still includes all major inputs and outputs in the urban-industrial sector.

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tory planning is the planning done at the national level, targets determined at that level and passed down the economic administrative hierarchy as necessary assignments. Guidance planning, however, is when the central planners determine only broad aggregates which are then broken down in a more flexible process of negotiations with lower levels. The central government provides some guarantees for input deliveries for those who volunteer to meet their share of the guidance plan target. As far as the individual enterprise is concerned, however, the main difference appears to be whether their plan is assigned to them through the normal economic bureaucracy (as in the past) or worked out for them (?with them?) by local authorities. The really significant changes appear to be the provision for *some* state-enterprises leaving the planned sector altogether, for a single commodity being produced in all three sectors (mandatory planned, guidance planned, and market sectors), or for a single enterprise producing output for all three sectors.

[5] Reported in Robert Delfs, "Free-Market Communism," *Far Eastern Economic Review*, 25 October, 1984, p. 51.

[6] In a very frank and interesting follow-up discussion with representatives of the Materials and Supply Allocation Bureau (those who actually draw up the material balances for commodities, i.e., the actual planners), the question was posed that the reform threatened to weaken their control over the economy, especially if enterlprises were allowed to leave the planned sector to produce commodities for the much higher-price (for the present time, at least) market sector. After giving us a list of 27 inputs they controlled, they admitted enterprises were to obtain greater freedom to operate outside the planned sector, "but if they want the guarantee of receiving any of these inputs, they will have to do business with us."

The economic reform program of the last seven years, especially the introduction of the contract responsibility system in agriculture, and the greater financial responsibilities and resources of enterprises in the industrial sector, with the documents of both Third Plenums (1978 for agriculture, 1984 for industry), obviously signal very important modifications in the Soviet-type economy in China. The reforms already introduced and these signals of changes to come provide ample reasons for expressing "cautious optimism" about the eventual transition of China's economy to market socialism or a wholly new and unique Chinese system of socialism. The major thesis of this essay, however, is that even if these forcasts were to come true, that transition has just started *and* has a long way to go: China's economy today remains a Soviet-type economy and is much more typical of a Soviet-type economy than many Western observers or China's leaders themselves would lead us to believe.

THE PROBLEM: TESTABLE HYPOTHESES?

As A. Doak Barnett states in his introductory essay in this volume, "because realities in China as elsewhere are complex, even specialists using the same data can and do arrive at differing judgements," and "these judgements cannot be regarded as statements of non-existing 'revealed truth' about China's development in the period ahead."[7] For example, on the one hand, the share of economic activities in the collective, private, market sector (as against the state and planned sector) is significantly larger today than was true a decade ago and is much larger than most specialists believed possible only a few years ago. On the other hand, the state-planned sector still dominates the allocation of resources and products produced in the Chinese economy today. Both statements are true, but they still lead to arguments over whether the glass of water is half full or half empty. Those who cite the truly revolutionary changes that have been introduced interpolate these past changes to a prediction of market socialism in the future. Others, by continual reference to those elements of the traditional Soviet-type economy that remain in place, depict a modified, yet basically state controlled and planned, Chinese economy in the future.[8]

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[7] A. Doak Barnett, "China's Modernization: Development and Reform in the 1980s," in this volume.

[8] For a summary of the many economic reforms that have been introduced over the past few years and my own forecasts of where these economic reforms will eventually take the Chinese economy sometime in the future, see Robert F. Dernberger, "The Chinese Search for the Path of Self-Sustained Growth in the 1980s: An Assessment," in Joint Economic Committee, Congress of the United States, *China Under the Four Modernizations*, Part 1 (Washington, D.C.: U.S. Government Printing Office, 1982), pp. 19–76. Revised and updated assessments of China's economic reform program are included as parts of the following papers, in chronological order: Robert F. Dernberger, "China's New Economic Development (Model): Problems and Prospects," in Norton Ginsburg and Bernard A. Lalor, eds., *China: The 80s Era* (Boulder, Colorado: Westview Press, 1984), pp. 99-143; *ibid.*, "The New Economic Reform Program in China's Modernization," in John Israel, ed., *Culture and Technology: China and the West* (forthcoming); *ibid.*, "The Domestic Economy and the Four Modernizations Program," in George Packard and Alfred Wihelm, Jr., eds., *China: Policy for the Next Decade* (Boston: Oelgeschlager, Gunn & Hain, Publishers, Inc., 1984) pp. 139–179 and *ibid.*, "The State Planned, Centralized System: Comparative Analysis of the Socialist Economies of the P.R.C. (China), the D.P.R.K. (North Korea) and the D.R.V. (Vietnam)," in Robert Scalapino, Seizaburo Sato, and Jusuf Wanandi, eds., *Asian Economic Development: Present and Future* (forthcoming).

How far the Chinese will go in the reform of their economic system remains an open question, but there can now be little doubt that the economy in the future will—at the very least—be a considerably different economy. Debates over what will happen in the future involve "untestable" hypotheses, i.e., they cannot be decided by reference to the empirical evidence available. On the other hand, our judgements about China's future are considerably better informed by an attempt to raise and tentatively answer several questions that can be resolved by reference to the existing literature or recent and current developments, i.e., the posing of several testable hypotheses. With this purpose, I address the following questions in this paper:

(a) What are the basic institutions which distinguish a Soviet-type economy from other economic systems?

(b) What are the various arguments in the existing literature which point to the inevitability of economic reform of any Soviet-type economy?

(c) To what extent has the economic reform program already modified the Soviet-type economy in China?

(d) To what extent has the economic reform program already changed the long-run growth trends in China's economy?

(e) To what extent do members of the top leadership in China agree with and support the program of economic reforms that have been introduced in China?

Insufficient access to necessary information, of course, may mean our tentative answers to these questions still depend upon untestable speculations. Nonetheless, any differences among specialists in their answers to *these* questions would indicate most clearly where to search among the existing evidence to resolve these differences. Furthermore, our analyses and evaluation of that existing evidence should also be more informative to the layman and of more use to the policy maker than our hypotheses about China's future economic system.[9] The organization of the paper follows the order of the five questions for which we hope to provide tentative answers, as they are listed above.

THE SOVIET-TYPE ECONOMY

The institutions that define the Soviet-type economic system cannot be found in the works of Marx-Engels-Lenin; rather than derived from the Classics of Communist ideology, they were introduced over a period of time in the 1930s as the Soviets, under Stalin, coped with their economic problems with no model to follow. By the late 1940s, however, the institutional organization of the Soviet economy had come to be identified as the ideologically correct economic system for any Socialist economy. Thus, these institutions were adopted throughout the Soviet bloc and in Mongolia, North Korea, China, and Vietnam when the Communists came to power in those countries.

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[9] In his introductory essay, A. Doak Barnett indicates the last three of these questions are among those upon which any assessment of the future fate of China's economic reform program must be based. He also presents his own tentative and well-qualified answers to these questions in his essay.

The basic components of this economic system as it was being introduced in China in the early 1950s consisted of the following:[10]

(a) The means of production in industry are nationalized, as are enterprises in the commerce, transportation, and banking sectors.

(b) These enterprises have managers appointed by the state who are assigned output and input targets. Their reward system is based on their exceeding their output targets, while minimizing their use of inputs.

(c) The output and input targets are determined centrally by the planners on the basis of material balance accounts (a T-account of sources and needs) for all major products.

(d) The government's budget acquires profits of state enterprises as revenue, along with indirect taxes levied on commodities and agricultural land. Government expenditures are allocated to cover the losses of state enterprises, normal government operating costs, defense, and all major investment expenditures.

(e) These budget expenditures are also determined centrally by the planners who control, therefore, the rate and allocation of investment, as well as the product mix of current output in the economy. Investments are financed by unilateral budget grants to the enterprises.

(f) The banking system holds cash deposits of the state enterprises, acts as a clearing house for transactions between state enterprises, finances approved budget expenditures, and makes loans for working capital of state enterprises.

(g) The economic plan (output and input mix, investment, transfers among enterprises and sectors, etc.) is in physical terms. Both the economic plan in physical terms and its counterpart, the financial plan in money terms, are to be balanced, but the planners try to correct imbalances by rationing or reallocating scarce inputs, outputs, or money as bottlenecks arise.

(h) Prices for most commodities are set by the state, as are wages for the various grades of labor.

(i) Trade and transport of most commodities are included in the plan and carried out by state enterprises, including the distribution of consumer goods through state retail-trade stores. All foreign trade is nationalized and carried out according to plan, by state trading companies.

(j) Agricultural production and capital, including land, is collectivized, peasants becoming members of the collective. They work on assigned tasks in exchange for work points, which represent a share of the collective's net income at the end of the production year. The collectives are assessed an agricultural tax and a fixed output quota that must be delivered to the state at a price that is below "a market price." Collectives can organize industrial and sideline activities while the individual peasant household has a private plot and can engage in private production and trade in rural markets after fulfilling a minimum obligation for work to be done on the collective sector. State farms are operated as state enterprises, the peasants becoming wage earners.

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[10] In his study of economic reform in Eastern Europe, Morris Bornstein lists nine essential characteristics of the Soviet-type economy. See Morris Bornstein, "Economic Reform in Eastern Europe," in U.S. Congress, Joint Economic Committee, *East European Economies Post-Helsinki* (Washington, D.C.: Government Printing Office, 1977), pp. 103-104. It is very important to note that the ten characteristics of the Soviet-type economic model the Chinese were attempting to introduce in the 1950s describe the *model*, not the actual institutional organization and functioning of the economy at the grass-roots level. Some knowledgeable students of China's economy argue that the results of their field research indicate the Chinese were never successful in effectively adopting the Soviet-type economic model as described in the text and, furthermore, that the recent reforms are really a formal approval of how the economy really functioned before the mid-1970s. (See unpublished papers by Christine Wong and by Barry Naughton.)

In the early 1950s, the Yugoslavs discarded the Soviet-type economy in favor of a market-socialist economy with worker-managed enterprises, while, in the 1960s, the Hungarians introduced their New Economic Mechanism which—in principle at least—rejected the Soviet-type economy in favor of market socialism. Less significant reforms have been introduced throughout the socialist countries in various attempts to modify the Soviet-type economic system. As a result of these reforms, few—if any—socialist economies today would exhibit each of the ten basic institutions of the Soviet-type economy as described above. Over the past few years, the economic reforms in China have modified almost all of these ten institutional characteristics. Thus, our definition of a Soviet-type economic system must be derived on the basis of those institutions considered as essential to distinguish the means by which resources and products are allocated in that economic system from the means by which they are allocated in any alternative economic system.

While allowing for considerable variability in institutional detail, the essential elements which define a Soviet-type economic system and differentiate it from other systems are the following:[11]

(a) Nationalization of resources and enterprises: Most land and raw materials are owned by the state, and the state is the major employer of labor in the industrial, construction, communication, and commercial enterprise owned by the state. Households may be the basic unit of production in the agricultural sector and a large and active private sector may exist side by side with the state sector in the non-agricultural economy. Nonetheless, state ownership of the means of production and economic units throughout the economy dominates economic activity. This is a basic principle of socialism.

(b) The allocation of resources and operation of enterprises within the state sector is largely carried out according to centrally determined plans. The plans include the budget, credit plan, input allocations, output quotas, trade and transportation, foreign trade, and employment. These plans can be based on information or decisions made at lower levels of the economic bureacucracy, or even the level of the production units themselves, but no matter how strongly influenced by lower levels, the plan is the result of conscious descisions about the central planners' (political leaders') priorities concerning the allocation of resources and, once approved, are assigned as targets for the lower level units of production. These plans can also be assigned to units of production outside the state sector, i.e., as quotas to be met by households. On the other hand, once it meets its targets, a unit of production or enterprise in the state sector may produce for and sell on a private market. A private, unplanned sector will exist and can be significant. Nonetheless, in a Soviet-type economic system, the planned allocation, i.e., production and economic activities undertaken to "meet the plan," of resources and commodities is determined by the preferences of the planners and political leaders. This was the major purpose for originally developing the Soviet-type economic system.

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[11] In a similar attempt, Ed A. Hewett reduces the essential charcteristics of the traditional Soviet economic model into a set of four general system characteristics. The first three of his four general characteristics are these we list here; his fourth is "emphasis on the fulfillment of quantitative targets" which I would argue is a logical corollary of the first three. For Hewetts" list of four general system charcteristics. see Ed A. Hewett, "Soviet Central Planning: Probing the Limits of the Traditional Model," unpublished paper presented at the conference on "The Soviet Union and Eastern Europe in the World Economy," Kennan Institute, Washington, D.C., October 18-19, 1984.

(c) Obviously, given the above two principles, prices will play a secondary role in the allocation of resources. That role may be important, but it will not be a dominant one. In the Soviet-type economic system, the plan targets are determined in quantities and as non-substitutable entities, while prices and values play a largely accounting function *in the planned sector of the economy.* In other words, when a gap appears between the supply and demand of an important commodity in the planned sector, the planner in a Soviet-type economic system will react by changing the plan targets, not by changing prices.[12]

A review of the ten characteristics of a Soviet-type economy listed above will indicate that several of those characteristics are means for facilitating more easily the implementation of the three basic features of a Soviet-type economy by the central authorities. In other words, it is essential to distinguish those reforms which are attempts to increase the efficiency of the economy while the three basic features of the Soviet-type economy are maintained and those reforms which alter the three basic features themselves. The economic reforms already introduced in China largely involve those which alter the non-essential features of a Soviet-type economy.

Yet, some of the newly introduced economic reforms would change or significantly reduce the scope of the three basic characteristics of a Soviet-type economy as well. Before attempting to unravel the complex reality involved in the package of economic reforms introduced in China thus far, however, it is important to recognize the considerable number of hypotheses that have been advanced in the literature to indicate that the reform of the Soviet-type economic system into a different economic system is inevitable *in the long-run.*

INEVITABILITY OF THE ECONOMIC REFORMS?

The first of the several theories or arguments suggested in the literature for the causes and inevitability of reform in the Soviet-type economy can be called a Darwinian evolutionary thesis or

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[12] A good illustration of this point was the recent decisions made by the Chinese on how to handle the problem of the excess supply of tobacco produced because the reforms had allowed the peasants to play a larger role in determining what to produce and how to produce it, as well as allowing them to keep a larger share of the profits. The administered price system indicated the profit from producing tobacco was much greater than that for most other crops and the peasants did what comes naturally—produce more tobacco. In response to the resulting surplus, however, the leaders did not lower the price of raw tobacco, they reduced the "allotted" acreage for planting tobacco in the plan.

"The Convergence Hypothesis."[13] According to this theory or hypothesis, both the capitalist, market economies and the Soviet-type economic systems, had their positive, as well as negative aspects, and each would be modified in the direction of a new, more perfect, economic system by adopting reforms to incorporate aspects of the other system. Yet, while we have seen much discussion and debate in the East European and Soviet economies about reform and have seen repeated reform of the reforms, at the present time the ranks of those economies that would readily be identified as Soviet model economic systems still includes the majority of the socialist countries.[14]

A second hypothesis can be derived from the "empirical evidence in favor of a uniform pattern of economic development." The collection of large-scale economic data banks, the sophisticated and rigorous analysis of this data by means of the comparative statistics between, input-output tables for, or the multiple regression results among countries in different income-per-capita categories all yielded a rather consistent and uniform statistical picture of the process of economic development.[15] Obviously, there was tremendous diversity among countries within each income-per-capita category, but this diversity was purposefully subsumed by the statistical method of deriving averages for the large number of countries in each category, or deriving correlation coefficients to apply to all countries in all categories so as to minimize the sum of the squares of their deviation from the norm. Nonetheless, the uniformities in the statistical results for the normal pattern of economic development were impressive. On the basis of this evidence, it is accepted that the Soviet-type economic system and Stalinist development strategy can lead to "exceptional" rates of accumulation and growth over a short period of time, i.e., several decades. On the other hand, it is argued that this exceptional growth period generates economic problems which force the adoption of systematic reforms so as to regain the more traditional, or "natural" pattern of growth in order to sustain the process of growth itself.

The third hypothesis predicting long-run fundamental reform of that Soviet system can be called "the technological imperative."[16]

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[13] See Jan Tinbergen, "The Theory of the Optimum Regime," In Jan Tinbergen, *Selected Papers* (Amsterdam: North-Holland Publishing Company, 1959), pp. 264-304.

[14] The Yugoslavian economy, a Soviet model economic system but for a short time at the end of the 1940s and in the 1950s, is basically a market socialist economy with worker-managed enterprises. The Hungarians have persisted in their attempts to create a market socialist economy ever since the initial reforms in the 1960s, and their economy can no longer be described as a Soviet model economy. Romania and Czechoslovakia have introduced reforms to modify their Soviet model economic systems to some extent, but those economies retain the basic elements and functions of a Soviet model economic system. All the other economies in East Europe, and even the Soviet Union, have introduced price reforms, changes in the financing of investment, i.e., all sorts of piecemeal modifications to their economic systems, but remain in their basic characteristics a Soviet model economic system.

[15] The study of the comparative statistics between countries in different income-per-capita categories is to be found in the works of Nobel Prize winner, Simon Kuznets. See Simon Kuznets, "The Quantitative Aspects of the Economic Growth of Nations," published in more than ten supplements to *Economic Development and Cultural Change* between 1956 and 1966. For the use of input-output tables, see Hollis Chenery, "Patterns of Industrial Growth," *American Economic Review*, September, 1960, pp. 124-54. For the use of regression analysis, see Hollis Chenery and Morses Syrquin, *Patterns of Development, 1950-1970* (New York: Oxford University Press, 1975).

[16] For an extensive discussion of the "technological imperative" and its impact on the socialist economies, see Fred Fleuron, ed., *Technology and Communist Culture* (New York: Praeger, 1977).

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The most efficient and productive technology was developed in the West and is a complementary or integrated part of the resource endowments, institutional organizations, behavioral patterns, etc., of those cultures. Inasmuch as one of the Soviet model economic system's weaknesses is its inability to create and utilize a steady flow of new technology, a gap occurs between the technology in these economic systems and that achieved by the capitalist, market systems. When this gap becomes a constraint on further growth and development, the socialist economy increases its imports of capital and technology from the non-socialist countries to catch up. These imports of foreign technology embody their "technological imperative," i.e., their acquisition, successful transfer and adoption, and "most efficient" operation requires the adoption of their associated organizational and functional economic system.

The most strongly worded hypothesis can be called the "deadweigth loss" argument; the inefficiencies involved in the Soviet model economic system are so large that the political leaders of these countries will be forced to engage in systemic reform in favor of an economic system with a more "acceptable" level of inefficiency. Statistical studies have shown clearly the terrible dead-weight loss of the Soviet model economic system.[17] These costs are considerably increased when the economy graduates from the stage of "extensive growth" (growth by means of building new production facilites for rather standard products) to "intensive growth" (growth by means of modernizing existing production facilities and inceasing the quality, sophistication, and variety of the product mix). Thus, the advocates of this "inefficiency" imperative believed that they had the explanation for the reform movement at the end of the 1950s and into the 1960s, when this shift from "extensive" to "intensive" growth was taking place in Eastern Europe and the Soviet Union.

Two more hypotheses about the inevitable reform of the Soviet model economic system can be mentioned so as to give the political scientists their due. A struggle in the socialist economies is posited between the revolutionary utopians who incite, mobilize, and lead the revolution to victory and the more pragmatic developmentalists in their midst.[18] The post-revolutionary programs of the Utopians eventually encounter the harsh constraints and dictates of economic scarcity and necessity which eventually win out, and the revolutionary, utopian generation loses its leadership of the revolution to the pragmatic developmentalists. This analysis captures the essence of the force for "revisionism" throughout the socialist world.

A second "ideological" thesis identifies political developments as the inevitable cause of reform. Alexander Gerschenkron has argued that idelogy is a symbolic language used to mobilize populations to achieving objectives not directly or obviously serving their own interest.[19] In the case of the socialist economies, this use of ideology is given institutional and functional form in the Soviet model economic system and Stalinist development strategy. This mobilization of individuals to pursue the objectives of the planners and leadership at the neglect of their own self-interest can only last so long, when reforms must be introduced to restore incentives for the purpose of economic development and retain popular support for the political leadership.

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[17] See the articles of Abram Bergson for the empirical research which *implies* this conclusion, i.e., Abram Bergson, "Development Under Two Systems: Comparative Productivity Growth Since 1950," in Morris Bornstein, *Comparative Economic Systems: Models and Cases* (Homewood, Illinois: Irwin Press, 1974), third edition, pp. 429–55.

[18] See Richard Lowenthal, "Development vs. Utopia in the Communist Party," in Chalmers Johnson, ed., *Change in Communist Systems* (Stanford, Cal.: Stanford University Press, 1970), pp. 33–116.

Each of the above arguments contributes insights into the process of economic reforms in economies with Soviet-type economic systems, and they are complemented by several arguments specific to the current economic reform program taking place in China today. Among the many arguments for believing the Chinese will successfully achieve the completion of the current economic reform program and replace the Soviet-type economy with a market-socialist economic system, I believe the following are the more credible:

(a) The results of the economic reforms introduced thus far are so impressive that the leadership, which has given economic objectives a very high priority, will be, or already has become, convinced of the economic benefits of the program of economic reforms, even including systemic reform.

(b) The economic reforms introduced thus far have already given increased material benefits and/or created rising expectations of those benefits to such a large segment of the population that the leadership will be unable to implement any intended limits to the program of economic reform, and will be forced by the masses to continue on with true systemic reforms.

(c) The leadership is dedicated to economic reform in a desire to make its economic system work better, and as that leadership learns that a piecemeal attempt to patch up the shortcomings of the traditional system won't work, they will be forced to seek a better alternative economic system for the sake of successful economic modernization.

(d) Although unintended, the attempt at economic reforms involved considerable decentralization of authority and decision-making to the extent that the leadership at the top has lost control over the program of economic reform which is now being introduced and carried out at the local level. The result will be a new and uniquely Chinese economic system, relying to a great extent on traditional Chinese institutions and patterns of behavior.

(e) The leadership's attempt to experiment with economic reform has meant that the economists or experts have acquired a considerably greater role in formulating policy at the top of the political network. These experts are a leading focus of support for true systemic reform and, having learned from their mistakes (both economic and political) in the past, will be much more successful in achieving their objective of systemic reform during the next phase of experimental reforms in the future.

All of the above hypotheses and arguments accumulate into an overwhelming case for the inevitable reform of China's economic system. Yet, inefficient economic systems and policies have been maintained throughout the history of the world over very long periods of time. The same is true of totalitarian governments. Furthermore, systemic reform is rather rare; societies attempt to adopt piecemeal and patch-work remedies to problems rather than undertake systemic reforms. Thus, it may be a bit premature to accept the determinism concerning China's future economic system that is involved in these hypotheses and arguments about an *inevitable* future course of events.[20]

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[19] See Alexander Gerschenkron, "Ideology as a System Determinant," in Alexander Eckstein, ed., *Comparison of Economic Systems* (Berkeley, Cal.: University of California Press, 1971), pp. 269-99.

CURRENT STATUS OF THE REFORMS

The existence of a cooperative and private sector and "free market" transactions in goods and services is nothing new in a Soviet-type economic system, either as an open and legal sector urged to "fill in the cracks" left by the state-planning sector, or as a second economy that achieves the same purpose. This cooperative and private sector also was permitted during the Soviet-type economic system of the 1950s and early 1960s in China. In other words, it is not *the mere existence* of these institutions and activities, it is *their relative magnitude* that will determine whether or not there has been a fundamental, systemic change in China's economy. Quite simply, the private-collective/market sector in China today is increasing, but it is still smaller than it was during the 1950s and early 1960s. For example, between 1979 and 1982, private-industrial workers in urban areas increased by over 50 percent a year, totaling 1.47 million in 1982.[21] Statistics for 1983 indicate the total for urban, self-employed workers increased by another 57 percent to 2.31 million.[22] Even so, although approximately equal to the level in 1962–64, the level of urban self-employed in 1983 (year-end) still was only 36 percent the level in 1955 (year-end).[23] On the other hand, while we do not know the share of economic activity carried out in the urban collective sector on behalf of the planned-state sector of the economy, a large share of economy activity in the urban collective sector must fall within the private-collective/market sector. The number of workers in the urban collective sector increased by one-third between 1978 and 1983, totaling 27.44 million in the latter year, about one-third the level of employment in state enterprises.[24] In terms of industrial production, however, state-owned enterprises still accounted for over three-fourths of total industrial output in 1983.[25]

The same picture of rapid growth in the private-collective/market sector, but continued dominance of the state/planned sector, can be illustrated with the statistics for retail trade. Between 1978 and 1983, retail sales by individual traders rose by over 200 fold, retail sales by peasants increased by almost 50 fold, while retail sales by collectives rose by 400 percent.[26] Yet, in 1983, retail sales by collectives were still less than 20 percent of total retail sales *and* the collective's retail sales were three times those by individual traders and four times those by peasants.[27] In other words, the state sector's share of the total volume of retail sales of commodities was still more than 70 percent.

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[20] "Observations about the inevitability of genuine economic reform in the Soviet Union are probably correct, but not terribly illuminating. If Western specialists have any grasp whatsoever of the dynamics of this system they should be able to be somewhat more precise than that." Ed A. Hewett, *op. cit.* In the case of the Soviet Union, Hewett argues in the paper from which the above quote is taken that in light of the analyses he presents in the paper, 'all of this leads me to conclude that it is certainly possible that at the end of the century the Soviet system will be much as it is today. It might even be the most likely outcome."

[21] *Statistical Yearbook of China, 1983* (Beijing: Statistical Publishers of China, 1983), p. 120.

[22] *Statistical Yearbook of China, 1984* (Beijing: Statistical Publisher of China, 1984), p. 108.

[23] See footnote 21.

[24] Zhu Qingfang, "Major Economic and Social Achievements (I)," *Beijing Review*, October 1, 1984, p. 16.

[25] *Ibid.*

The above statistics, of course, are biased estimates for the role of the market vs. the plan in China's economy today. First of all, not all economic activities of the cooperatives fall *outside* the state/planned sector. Secondly, not all activities of the state enterprises fall *inside* the state/planned sector. State enterprises are allowed, as a result of the program of economic reforms, to utilize their resources and produce goods "for the market" after their plan targets for output were fulfilled. Most discussions of this reform for allowing market sales of above planned-target output set a guideline of 15-20 percent of an enterprise's total output and one estimate (1981) claimed these self-sold products by industrial enterprises accounted for 20 percent of urban industrial production.[28] The proportion of industrial production produced for and distributed to "the market" by state enterprises has obviously increased since 1981, as some state industrial enterprises are now allowed to handle *all* of their production in this manner in an experiment of possible future reform policies.

Thirdly, the above discussion refers in particular to the industrial and trade sectors and we must add an evaluation of developments in the agricultural, construction, and transport sectors to complete our estimate of market vs. plan in China's economy today. There is no reason (or evidence) for believing that liberalization in the construction and transportation sectors has proceeded more slowly than in the industrial or commercial sectors. In any event, output in these two sectors accounts for less than 10 percent of China's national income (net material product). Agriculture, however, is the largest sector, accounting for over 40 percent of China's national income since 1980. Much of agricultural production is produced for neither the market nor the plan; it is produced for the producers' stomachs, never leaving the farm. As for the surplus produced, the agricultural tax and "planned procurement" deliveries are specified in kind; any residual retained by the collective or individual household can be sold to the state at "above procurement quota prices" or sold on the market. Certain products (i.e., cotton) must be sold to the state at "negotiated" prices; they cannot be traded on "free markets." The *marketing rate* of the various products, therefore, varies widely from product to product, the highest rates being for subsidiary or commerical/industrial crops, but many products must be sold to the state entirely or for a quota that accounts for a dominant share of the output of that product.

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[26] Author's estimates based on shares of retail sales in 1978 and 1983 given in source cited in footnote 24, p. 16; the total value of retail sales in 1983, given in same source, p. 28; and the total value of retail sales in 1978 given in source cited in footnote 21, p. 367.

[27] See footnote 26, p. 16.

[28] Zhang Zhouyuan and Xing Junfang, "Give Full Play to the Superiority of the Socialist Planned Economy," *Jingji Yanjiu*, No. 4, 1981.

One estimate (1981) claims that one-third of the total output of agricultural *sideline* products was purchased outside the plan.[29]

An initial attempt to determine a precise estimate of the extent to which economic activities are market or plan induced in China's economy today on the basis of a sector by sector analysis has proven impossible due to the lack of necessary data.[30] Nonetheless, in light of the above discussion, we believe it is neither groundless, nor biased, to make the following rough estimate. In industry we estimate that one-third of all output was produced for the market in 1983 (all of the production in individual/private enterprises, two-thirds of collective industry production, and, one-fourth of the output of state-owned enterprises). For commerce, we estimate that while one-fourth of all retail trade is carried out in accordance with market principles, a considerably smaller proportion of wholesale trade falls in the market sector, and for the commerce sector as a whole, one-fifth of total trade is a reasonable estimate for market sector activity in 1983. Most modern means of transport are owned and operated by the state, and our estimate for market sector transport activities in 1983 is one-seventh (or 15 percent) of total transport activities. Private and cooperative construction activities have been singled out for special emphasis and, therefore, we allow for as much as one-third of all construction activities in 1983 being undertaken within the market sector, i.e., determined by market signals or forces. Finally, in the agricultural sector, we allow for as much as one-fifth of all production in 1983 to be the result of a reaction to market signals or opportunities. If the above estimates are within reason, then our conclusion would be that approximately one-fourth of all economic activity in China's economy can be considered as within the market, as against the planned sector. Further increases in the scope of market activities in 1984 may well have increased the share to one-third.

These estimates are presented merely to illustrate an argument which states that no matter where the Chinese may end up in the future, at the present time, at least, their economic system remains dominated by the basic institutions of a Soviet-type economy. The economic reform program obviously has restored a sizeable and growing private and collective market sector and has even made allowances for state enterprises to participate in this market sector as well. On the other hand, at the present time at least, there is sufficient evidence that central authorities intend to control these growing market sector activities to ensure the retention of the three basic features of a Soviet-type economy listed earlier.[31] In a

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[29] *Ibid.*

[30] Discussions with representatives of the State Planning Commission, the State Economic Commission, and the State Statistical Bureau in December of 1984 indicated the Chinese do not have an official estimate of economic activities in the two sectors (planned vs. market). Production under mandatory planning within the state's plan or the national level (*Guojia*) plan is commonly said to be 40 percent of total output. This does not include economic activities that are "planned" by local authorities on their own. As for cooperative and individual enterprise production for self-consumption or for the market, only estimates based on sample surveys are available. Thus, high level authorities involved in planning and statistical work were unable to provide an estimate of the shares of total economic activity carried out for "the plan" and for the "market" at the present time.

[31] For an illustration of the concept of controls to be applied to market-sector activities, see "State Regulations on Rural Private Industry, Trade," *FBIS*, 13 March, 1984, pp. K10-13; and "State Council Rules on Transportation, Marketing," *Ibid.*, pp. K13-15.

1982 speech, Zhao Ziyang argued that "ours is a unified socialist nation. We must have a unified plan and a unified domestic market . . . . In order to strengthen centralization and unification in economic work, we must adhere to the overall plan on major issues while allowing freedom on minor issues. We must advocate centralism on major issues while allowing decentralism on minor issues. The commodity price and revenue system must be centralized and unified . . . . No matter what reform is to be carried out, the general guideline is to combine the strengthening of centralization and unification with the activation of the economy and to bring into full play the initiative of localities, departments and the principle of taking the whole country into account."[32]

More recent comments can be added to those given by Premier Zhao in 1982. In a special article commissioned to celebrate the 35th Anniversary of the PRC, the establishment of the state ownership of the means of production is listed as the first of China's ten major achievements since 1949.[33] The recent reduction in the scope of "ownership by all the people" is claimed to be a readjustment made necessary by the excesses of the Cultural Revolution period which pushed the transformation to public ownership too far and too quickly given the level of productive forces in China at the present time. As for the central planned targets, Song Ping, Minister in Charge of the State Planning Commission. in his report on the draft plan for 1984 presented to the 2nd Session of the Sixth National People's Congress, argues the recent reduction in the state/planned sector also is to correct for excesses in carrying out control through state planning in the past.[34] The reforms of the system of planning should continue and *in the future* the state plan should deal mainly with major items of key construction projects and the production of important commodities only. Finally, while price reforms are referred to as a possibility at some future (i.e., distant future) date, and while price adjustments within the state's administered price system are becoming more common, the fourth "specific task" of the 1984 economic plan was the effort "to continue to tighten price control and stress stabilization of the selling prices" of urban retail sales and to "provide guidelines for pricing and exercise control over prices at the [rural] trade fairs." [35]

To a layman the Chinese economy looks like a mixed economy, so why argue whether the glass is half empty or half full? The reason for emphasizing the continued existence of the basic features of a Soviet-type economy in China's economy is both simple *and* very important. As long as a dominant share of the enterprises are owned by the state and managed by state-appointed managers within an economic-administrative bureaucracy it will be very, very difficult to have them behave as autonomous actors responding to market signals in a manner that yields efficient and economically desirable results.[36] As for the existence of planned-output targets, the history of any Soviet-type economy reveals an ebb and flow between periods of centralization to establish coordination and control at the macro-level and periods of decentralization to stimulate greater efficiency at the micro-level. Yet, as long as the central planners continue to hold office and determine output targets for the most major products, if they are to mean anything, these output targets will generate a wave-like ripple effect throughout the economy to secure inputs necessary for ensuring the targeted outputs by non-market or administrative means. If the planners were to lose this struggle over resources, they would no longer be "planning" the most important investment and outputs in the economy—by definition. Finally, if most production and the distribution of commodities were to become determined by market forces, rather than the decisions of the planners, if the prices used as the parameters in making these decisions were administered prices that did not reflect true scarcity in the economy, then the resulting decisions would be irrational, i.e., inefficient.

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[32] "Zhao Ziyang's Speech at Industry Conference," *FBIS*. 1 April 1982. quoted material from pp. K6-8.

[33] See source cited in footnote 24.

[34] "Report on the 1984 Economic Plan," *Beijing Review*, 28 May, 1984, p. 20.

[35] *Ibid.*

[36] An excellent reference to this very point is to be found in the papers and discussion at the panel on Hungary at the conference on "The Soviet Union and Eastern Europe in the World Economy," Kennan Institute, Washington, D.C., October 18-19, 1984.

Two particular features of the program of economic reforms that have already taken place are believed by some observers to have changed the Chinese economic system in a fundamental way or to have created the undeniable determinants of the transformation of that economic system within the near future. These are the contract responsibility system in agriculture and the profits tax and self-responsibility for profits and losses in industry.

Undeniably the most radical institutional change in the economy has occurred in the agricultural sector: the adoption of a contract responsibility system and the permitting of some households (approximately 13 percent of all farm households) to specialize in sideline or completely commercial farming, with no limit on household income. The contract responsibility system restores, in effect, household-tenant farming, with leases longer than fifteen years. Peasant households now have the ability to trade and amalgamate land in the hands of the most skillful farmers, giving them permission to hire farm laborers as well. As for those households allowed to leave crop production altogether, they specialize in a sideline or non-crop commercial agricultural activity, buy considerable amounts of capital goods for that purpose, and engage in long distance transportation and trade. This new policy is defended by the leadership for a very simple reason—it works. At least it has worked very well in the past. Whether it will continue to do so in the future is another matter, but China's leaders certainly have pinned their hopes on its continued success.

In regard to our argument in this paper, the current leadership also initially accepted and then strongly advocated the contract responsibility system in agriculture because it did not alter the three basic principles of the Soviet-type economic system. There is to be no private ownership and market sales of land; the land remains public property and the state is the landlord. Second, the tenant's contract with the state assign to the peasant tenant household the planned targets for output included in the state plan: their tax delivery obligations, their quota for deliveries to the state purchasing agencies at the administered prices set by the state, their contribution to the welfare fund, and other obligations to the local collective or government. All of these obligations are to be negotiated, but the same was true of these same obligations assigned to the collectives in the past. The big difference with the past, of course, is that the household is free to organize the resources at its disposal to produce the output required to meet its contract quota, and is given private ownership rights in the disposal of any surplus produced.

The Chinese leadership acknowledges that the state-planned sector could not obtain the products needed if they were to abandon their assignment of "planned" quotas in agriculture. The administered agricultural price system is such that if the peasants were not required to produce certain products in quantities beyond their own needs, the peasants would shift to more profitable crops, to the neglect of the most important and basic crops in agriculture.[37] A price reform that would rationalize prices to the point where planned quotas assigned to the contract households were no longer necessary is unlikely to occur, at least in the foreseeable future.[38]

Impressed with the results of the contract responsibility system in agriculture, reforms with a similar purpose have been introduced in the urban-industrial sector. To stimulate initiative in problem solving at the local level and to ensure a more responsible use of investment funds, the program of economic reforms has allowed enterprises and local authorities to retain a share of their profits or budget revenues and to use these retained funds for investment purposes. In addition, investment projects in certain sectors and for certain purposes were to be financed by means of bank loans which had to be repaid with interest. As a result of these reforms, the amount of "outside plan" investment is considerably larger than was the case in the pre-economic reform period. As for planned investment, the economic reforms intend to change the manner in which that investment is financed as well. While a considerable portion of planned investment will be financed by unilateral budget grants as in the past, a significant portion of planned investment will be financed by bank loans and/or retained earnings and shared revenue.[39] It is clear that the intent of these reforms is to shift the burden for financing investment on to the local units of government and the enterprises, reducing the burden of the unilateral budget grants on the resources of the central government. At the same time, however, any project not within the state plan that is to be financed by means of retained earnings, shared revenue, or bank loans must receive the approval of higher level authorities, the particular level depending on the size of the project.[40] In other words, the central authorities intend to keep central control over the determination of what the investment projects will be and who will undertake them, decisions to be based on national, not local, interests.

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[37] A study of production costs for 46 brigades in Henan from 1980 to 1982 showed that the production of foodgrains resulted in very low rates of profit (7.91 yuan per mou for the five basic grains or about 20 percent), while commercial crops were very profitable (118.2 yuan per mou for tobacco or about 75 percent). In 1981, the producers of the five basic grains suffered a loss. See *Rural Financial Accounting*, No. 7, 1983, pp. 12-13.

[38] There is some discussion of shifting to a system of state contracts for advanced purchases from the peasant (a system adopted in the early 1950s before the move to the system of mandatory, quota sales), with the amount and price to be flexible, i.e., determined by means of negotiation, instead of assigned to the peasant as in the past. In a sense, this shift would involve the state merely having the right of first purchase at "near" market prices, rather than at administered prices set by the state well below the price prevailing on the market. This change indeed would represent a major reform in the administration of a traditional Soviet-type economy. Yet, the move to a system acquiring the State's demand for agricultural products on free markets would require not only a rational system of free market prices, but the willingness for the State to allocate the flow of funds the market purchase of these commodities would require.

[39] In some cases the retained earnings of shared revenue from one unit may be used to finance the investment of another. Surplus retained earnings or shared revenue are "expected" to be used to buy central government bonds, or may even be taxed away by means of a special assessment; either source is listed as budget revenue which can be used on the expenditure side to finance investment in any unit in the economy. If these retained earnings or shared revenues are deposited in the bank, they become funds available to the bank for making loans to finance investment projects in any unit in the economy.

Another important reform in regard to the relationship between state enterprises and the budget is the introduction of a profits tax to be paid to the state, while the enterprise assumes responsibility for its own losses and control over its net profits (among specified or approved uses). This reform is to be introduced in all state enterprises by the end of 1985. At the present time, given the administered price system and the assigned targets for outputs and inputs, profit rates and losses vary widely, even within an industry. The absence of competition over the past few decades means that extreme differences in technology, efficiency, and quality of output were able to exist, as long as profits were treated as budget revenue and losses were subsidized by the state. With each enterprise now responsible for its own profits and/or losses, the profits tax must be tailored to fit the situation in each enterprise—high taxes for very profitable enterprises, negative taxes for those who traditionally suffer losses. Thus, each enterprise will pay an enterprise specific "adjustment tax," which is tailored to assure that the after-reform retained earnings will equal the before-reform retained earnings, if no change in the output and costs were to occur. A second problem also exists; are the increased profits or reduced losses due to factors external to the firm, i.e., windfall profits, or are they due to greater efficiencies in the operation of the firm? Finally, this change merely creates one more issue of debate between the local units and the center, the tax rate on its profits and its profit or loss norm.

Planned targets for outputs and inputs in physical quantity are still the dominant objective of the enterprise; the application of a profit tax with the enterprise retaining the after-tax profits is an incentive mechanism to achieve the realization of those planned targets more efficiently. If the desire is to achieve a single rate profit tax to be applied to all enterprises, with those suffering losses being forced to close down, it would be necessary to rationalize the system of administered prices so that they reflected and were consistent with the planners' preferences as expressed in the planner's targets for inputs and outputs.[41] On the other hand, if the planners were to stop issuing physical quantity planned output and input targets and rely on the economic levers of rationalized, but still administered, prices that reflect their preferences (along with a profits tax and capital use tax levied for budget revenue purposes) to regulate the enterprise's production, the economic system would no longer be a Soviet-type economic system. Rather, it would have become a Lange-Lerner model, a market socialist system, with planners' preferences instead of consumers' preferences determining the administered prices.[42] This may well be the system the Chinese reform leaders have in mind as the ultimate objective of the urban-industrial reforms that will be introduced in the future on the basis of the program of economic reforms called for by the resolution on reforms in the urban-industrial sector adopted by the Third Plenum of the 12th Central Committee (CCP) in October 1984. As mentioned in the introduction to this paper, that resolution did not specify in any detail any new reform proposals beyond the reform experiments of the past and as of the present time, those experiments have not led to the abandonment of the three basic principles of a Soviet-type economy in China.

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[40] This would result even if not intended because, as in the case of all similar reforms in Soviet-type economies, with the shift from unilateral budget grants to bank loans as a means for financing investment, the interest rates on the loans are set far too low to serve as a means for rationing the available investment funds among the alternative demands. Thus, with demand exceeding supply, the planners (or bankers acting on behalf of the planners) must allocate the available funds on the basis of some other criteria, usually the same set of allocative priorities they were pursuing when investment funds were allocated by means of unilateral budget grants.

THE REFORMS AND ECONOMIC PERFORMANCE

A major stimulus for the economic reforms and a reason for believing that the current economic reform experiments will eventually lead to the abandonment of a Soviet-type economy in China is the successful economic performance of China's economy over the past seven years, economic results attributed to the reforms by both Western observers and China's leaders.[43] Using the Chinese statistics for the index of national income (net material product) for 1949–1983 in "comparable" prices and the structure of national income for 1949–1983 in "current" prices, estimates are made for the index of net material product in agriculture, industry, and services (construction, transportation, and commerce) in 1949–1983. These statistics and estimates are presented in the Appendix to this article. A summary of the results are presented below in Table 1. There has been a remarkable increase in growth in production in the agricultural sector in the post-1977 period compared to the previous three decades, but the statistics for the industrial and services sectors are far from encouraging evidence for the success of the economic reforms.[44]

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[41] This level of success in the program of economic reforms would mean that the Chinese had achieved the objectives of Lieberman's reform proposals in the Soviet Union. Never intending to challenge the basic principles of a Soviet-type economy Lieberman argued that the single indicator of profits could be used to determine how efficiently the plan targets were being achieved by the enterprise, and the enterprise should be awarded on the basis of the profits it earned. Following their experiment with the Lieberman proposals, Soviet economists acknowledge the Lieberman proposal would not work in the absence of rational prices.

[42] Lange actually described such a system in an article published in Poland near the end of his life (i.e., late 1950s).

[43] The discussion here merely hopes to relate recent economic performance in China's economy to the economic reform program. A much more detailed and comprehensive analysis of economic performance in China's economy over the past few years is presented in the many papers that follow in this volume.

[44] The explanation of the lower growth rates in the industrial and services sectors in 1978–83 compared to 1949–1977 is easy to find: the attempt to balance ("readjust") the economy required changes in output mix that slowed growth in the heavy industrial sector, while the price subsi-

Continued

The general perception of the impact of the economic reforms on economic performance portrayed by the crude comparison of growth rates in Table 1 is reinforced by a detailed analysis of the time trends in these growth rates. For this purpose the growth rates for national income, agriculture, industry, and services are estimated in three different ways: the annual rates of growth from one year to the next (Y_{t-1} to Y_t); the average annual rate of growth for successive periods of greater duration, always taking 1949 as the base year and adding on one more year for each successive period (1949 to Y_t); and the average annual rate of growth for successive periods of shorter duration, always taking 1983 as the end year and eliminating one more year in the base year for each successive period (Y_t to 1983). The average annual rates of growth estimated in each of these three methods are presented in tables 1A (national income), 3A (agriculture), 4A (industry), and 5A (services).

TABLE 1.—AVERAGE ANNUAL RATES OF GROWTH

[In percent]

	1949-77	1978-83
National Income (Net Material Product)	7.8	8.0
Agriculture (Net Material Product)	5.1	12.3
Industry (Net Material Product)	14.4	6.8
Services (Net Material Product)	8.3	3.0

Source: Appendix, rates of growth in column labeled Y_{t-1} to Y_t.

The reason for using these three different methods in our estimates of the time trends in the growth rate is to try and obtain an unbiased picture of the time trend. The use of the annual rates themselves will be biased by the choice of initial and end years; the use of ever-increasing periods will be biased by the high growth rates in the initial period; while the use of every-decreasing periods will switch the bias from the initial years to the growth rates in the end years. Most fortunately, using any of the three methods yields the same conclusions. As shown in Table 2, for the period 1949–1977, with only two exceptions, the time trend was negative (a decline in the growth rate over time), with the magnitude of decline in percentage points being greatest in the method relying upon successively longer periods, a smaller decline in the rates of growth from one year to the next, and smallest in the method of relying upon successively shorter periods. Among the various sectors, the magnitude in the percentage point decrease in the annual rates of growth over time is greatest for industry, followed by services, and smallest for agriculture.

Compared with the picture portrayed by the statistics in Table 1, the analysis of the time trends in the rates of growth indicate a more pervasive impact of the economic reforms than just the agricultural sector. Table 2 presents the results of this analysis; the negative time trends in each sector's growth rates in the first two columns for 1949 to 1977 (Part A) are all reduced when the period of analysis is expanded to 1949 to 1983 (Part B). When the method

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dies for agricultural production was charged as a "cost" to the services (commerce) sector. Thus, these lower growth rates were a result of the reforms, not a signal of their failure.

for estimating the average annual growth rates is shifted to that method which gives the greatest weight to growth rates in the more recent years (the third column in Table 2), the picture portrayed by the statistics in Table 1 is not replicated by the results in Table 2. As in Table 1, the time trend for growth in agriculture in the past few years has been significantly above the time trend established for the rate of growth in that sector during the three decades following 1949. For the industrial and services sectors, however, the time trend in their growth rates after 1977 has not fallen below their pre-1977 growth trends.

TABLE 2.—IMPACT OF THE REFORMS ON THE TIME TREND IN THE AVERAGE ANNUAL RATE OF GROWTH

[Change in percentage points per year]

Method of Estimating Average Annual Rate of Growth	1949 to Y_t	Y_{t-1} to Y_t	Y_t to 1983
A. 1949 to 1977:			
National Income (Net Material Product)	−0.45	−0.31	+0.04
Agriculture (Net Material Product)	−0.29	−0.13	+0.15
Industry (Net Material Product)	−0.94	−0.88	−0.10
Services (Net Material Product)	−0.65	−0.51	−0.01
B. 1949 to 1983:			
National Income (Net Material Product)	−0.33	−0.17	+0.06
Agriculture (Net Material Product)	−0.19	+0.11	+0.24
Industry (Net Material Product)	−0.75	−0.69	−0.09
Services (Net Material Product)	−0.51	−0.42	−0.01

Sources: Table 6A, Appendix.

These statistical results, of course, are consistent with the Chinese leaders' perception of the successes of the economic reforms since 1977. Those reforms are claimed to have been very successful in agriculture, while industry and the service sectors still need to be reformed. Hence, the Chinese leadership's hope that the recent decision of the Third Plenum of the 12th Central Committee (October, 1984) will generate a wave of economic reforms in the urban non-agricultural sector that will replicate the impact of the reforms in agriculture generated by the documents for agricultural reform adopted by the Third Plenum of the 11th Central Committee (November/December, 1978). In addition, there can be no disagreement that one of the most significant results of the economic reforms has been a dramatic increase in per capita incomes in China since 1977. In real terms, the average annual per capita income in urban families increased by 43 percent between 1978 and 1983, while that for rural families nearly doubled over the same period.

To summarize the above discussion, those who cite the economic record of the past several years as indicative of the success of economic reforms, providing very strong support for their success in the future, can rely on the following:

(a) The very remarkably increase in growth in the agricultural sector.

(b) While the non-agricultural sectors have not done as well, that is because of the readjustment measures implemented in the past. These sectors should do remarkable better as a result of the reforms that will be generated by the decision of the Third Plenum of the Central Committee in October of 1984.

(c) The dramatic increase in per capita incomes as a result of the reforms has created tremendous popular support for the reform program.

Each of these arguments is a valid and logical basis for being a "cautious optimist" about the future of economic reform in China. Nonetheless, these "successful" developments over the past few years must be evaluated more carefully and better understood before interpreting them as "successful" indicators of the program of economic reforms. The most impressive improvement, as everyone agrees, has occurred in the agricultural sector. As a result of the documents adopted by the Third Plenum of the 11th Central Committee in 1978, without eliminating the assignment of planned acreage, output, and procurement quotas, etc., the reforms in this sector—as described in a previous section—restored incentives, sideline activities, freedom for the producer to determine production and distribution, subject only to the need to meet the plan targets. This considerable liberalization and reform of the collectivized system of agriculture in a Soviet-type economy, especially when compared with the situation in China before 1978, obviously is responsible for some of the dramatic increase in the growth trend in agriculture shown in Tables 1 and 2.

Yet the increased growth trend also is partly due to several factors which did not require any systemic reforms, factors that lead to one-time shifts in productivity and that will be very difficult to replicate *in combination* in the future. These factors are the large price increases introduced over several years after 1977 for quota and above quota deliveries to the state, the reallocation of the mix of production activities to restore the pre-Cultural Revolution pattern of specialization in Chinese agriculture, and a period of three successive very good weather years in 1981–1983 for which there is no comparable period over the past three decades.[45] In other words, the growth rates in agriculture over the past six years are not indicative of sustained growth in a "reformed" agricultural sector in the absence of continued increases in output prices, further shifts in favor of more "profitable" production activities, and with average weather.

As for the non-agricultural sectors, despite a wide variety of reform experiments over the past several years, the improvement of economic results in the non-agricultural sectors have been very difficult to achieve. Even after six years of efforts, in his 1984 report to the National People's Congress, Song Ping, the Minister in Charge of the State Planning Commission, claimed "The improvement of economic results is relatively slow.[46] For example, losses are still being realized by a significant number of enterprises and the reduction in costs in 1982 was only 0.2 percent, while increases in the productivity of labor have been negligible.[47] These limited achievements are all the more striking in light of the closure of enterprises, reallocation of investment, and changes in industrial and product structure to achieve better economic results.

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[45] For an analysis of the price increases and their impact on agricultural production, see Terry Sicular, "Agricultural Price Changes," in this volume; for the gains in productivity from the ability to revert back to traditional patterns of specialization, see Nicholas Lardy, *Agriculture in China's Modern Economic Development* (New York: Cambridge University Press, 1983); and for the impact of a dummy variable for good, average, and poor weather in a production function for agricultural production in China, see Anthony Tang, "Organization and Performance in Chinese Agriculture," paper presented at annual meeting of American Economic Association, Dallas, December 29, 1975.

[46] "Report on the 1984 Economic Plan," *Beijing Review*, 28 May, 1984, p. 19.

To a considerable extent, this poor record of the reforms in the non-agricultural sector explains much of the ballyhoo associated with the policy decisions of the Third Plenum of the 12th Central Committee. According to that decision, "our successes in rural reform . . . provide highly favorable conditions for restructuring China's entire national economy, focusing on the urban economy. . . . Our urban reform is only in the initial stage, however, and defects in the urban economic structure that seriously hinder the expansion of the forces of production are yet to be eradicated." With its more limited interdependence with other production activities in other sectors, the "unleased" initiative of the peasants readily led to increases in output and income in that sector. In the non-agricultural sector, however, economic activities are much more integrated and require considerable efforts at coordination to achieve the proper balance between inputs and outputs. Thus, with non-scarcity prices and a woefully underdeveloped market and trading system, each of the repeated reform attempts to create incentives and allow for greater decentralized decision-making in the non-agricultural sectors over the past six years has created serious problems, leading the central authorities to reinvoke their control over economic activity in the relevant sector to enforce "the national interests."

In other words, necessary economic reforms in the non-agricultural sector involve much more than material incentives and an expansion of decision-making at the level of production. Thus, while the document adopted at the Third Plenum in October of 1984 encourages economic reforms in the non-agricultural sectors similar to those in the agricultural sector, true economic reforms in these sectors will rely much more on a reform of the planning system and a price reform—reform that must come from above, not from below. About the only indications of reform in these areas included in the document of the Third Plenum of the 12th Central Committee are the calls for a reduction of the number of commodities under mandatory plans,[48] a similar decrease in the number of prices to be fixed by the state, and an adjustment in some of the prices included in the list of fixed prices. Changes in the economic system in the urban-industrial sector fall considerably short of those introduced "from below" in agriculture and do not guarantee the elimination of the "defects in the urban economic structure that seriously hinder the expansion of the forces of production."

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[47] While the overall change in economic results, i.e., increased efficiency-productivity-profitability, has been very negligible, the situation varies quite widely among sectors and localities in the non-agricultural sector. Thomas Rawski is currently engaged in a research project to uncover the explanation for these very different results.

[48] Shifting a particular economic activity from the mandatory planned sector to the guidance planned sector still leaves it in the planned sector, not the market sector. See the explanation of the differences between mandatory and guidance planning in footnote 4, above.

Finally, the increases in the per capita income and standard of living of the population are not a hoped for future, but a realized past: one of the most positive and obvious results of the economic reforms. These increases were not obtained without costs. The most obvious cost was the large subsidies in the budget that the maintenance of these higher incomes and standards of living required, along with the inflationary pressures that accompanied the increases in demand not matched by increased output of consumer goods. To remedy the budget deficits created by the earlier increase of producer prices of agricultural products, the wholesale and retail prices of those commodities are to be raised. Yet to avoid a reduction in real income for the urban families, higher urban wages will be paid. Raw material prices are to be raised to eliminate one of the most serious problems in China's administered price structure. Despite the increase in wage costs and raw material prices, the document of the Third Plenum argues that the enterprises are to absorb these cost increases without passing them on as output price increases. With no output price increase, the rising costs would seem to imply reduced profits either at the expense of the enterprises' retained earnings (their material incentives) or the profit tax paid the state (creating a financial problem for the budget which was the cause of the price changes in the first place).[49]

A second problem created by the increases in per capita incomes and standards of living is the changes in the distribution of income that are very much a result of the economic reforms. Almost everyone in China has a higher income and standard of living as a result of the economic reforms. After the ten terrible years, 1965-1975, the initial increase in the national average per capita income and standard of living should easily outweigh any concern for an inequitable distribution about the mean. Over time, however, arguments about a larger share of the ever-growing pie will, and in some cases already have, become important considerations.

POLITICAL SUPPORT FOR THE ECONOMIC REFORMS

Those who argue that the systemic reform of China's economy is inevitable or just around the corner draw their strongest support from their reading of the consensus for these reforms among China's leaders. The existence and nature of [illegible] economic and/or political strategies in China today is [illegible] Carol Lee Hamrin's contribution to this volume and [illegible] there is no need for a detailed consideration of this to[illegible] Inasmuch as this factor—political support for the economic reforms—must be included as one of the three major [illegible] the past and current developments in China's economy [illegible] are important as determinants of China's economic future, a brief summary of our interpretation of the current nature of the political support for the economic reforms is included here.

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[49] My impression from discussions held in Beijing in De[illegible]th representatives from the economic bureaucracy was that the actual price ad[illegible] be drawn out in a series of marginal changes over a fairly long period of time. [illegible] it was rumored that the retail price increases to alleviate the budget subsidies in [illegible] agricultural products would reduce the budget subsidies by less than 50 percent.

[50] See Carol Lee Hamrin, "Competing Economic-Political Strategies, [illegible] this volume.

We begin by asserting that one of the most widespread, costly, and obvious mistakes made in the past by American China specialists has been their assumption of a consensus or stable coalition existing among the top leadership group *or* the ability of a single person to dominate that leadership group. Although Deng Xiaoping has worked hard, and with considerable success, to create a leadership that both in thought and purpose does not oppose him, they still reflect a variety of interests and interpretations, with different relative weights assigned to their common objectives, etc. Our past experience should be warning enough that we must avoid assuming that there is unanimous agreement with, or support for, the particular reforms advocated by any single member of the leadership.[51]

It is important to note that this argument does not rely upon the current leadership's being unstable or their inability to stay in power over the foreseeable future. It is in this regard that the current leadership group may be unique: it has a relatively high degree of stability and I believe it probably will be able to solidify its position as the ruling group in China even after Deng passes from the scene.[52] Equally important I believe this leadership group has achieved a remarkable degree of consensus over the need for reform in China's economy as symbolized by the resolution of the Third Plenum of the 12th Central Committee in October, 1984. As that document makes clear, however, there is still considerable room for disagreement over the specific nature of that reform. Members of the leadership do not publicly express their personal views and we are not privy to the discussions held at their closed meetings. On the basis of my own reading of what has been said, and what has *not* been said, in the speeches of various members of the leadership group and the various documents that have been adopted in regard to the reforms over the past years, however, I believe that the following positions identify the variety of interests and opinions held among China's leaders.

To begin with, obviously there is unanimous support for economic reform; that reform is to retain a socialist economic system in China, but to be uniquely defined by the Chinese themselves on the basis of trial and error, not based on a theoretical model, nor borrowed from another socialist country. In addition, although there are those who would advocate the adoption of a pure market socialist economy and those who would just as soon return to the unmodified Soviet-type economy of the mid-1950s (China's "golden age"), both these extremes do not fall within the definition of economic reform being sought by any of the current leaders. Yet, there remain considerable differences among the individuals among the current leadership group who are the most important in the formulation of China's economic reform program: Deng Xiaoping, Hu Yaobang, Znao Ziyang, and Chen Yun.[53]

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[51] Throughout our article, the terms "Chinese leadership" or "leadership group" are used to refer specifically to the members of the Standing Committee of the Political Bureau of the Central Committee of the Communist Party of China. These are Deng Xiaoping, Hu Yaobang, Zhao Ziyang, Li Xiannian, Chen Yun, and Ye Jianying. The actual participants in policy formulation and implementation would include a much larger group than the six member Politbureau. Nonetheless, the arugment relevant to the point being made is facilitated by limiting our analysis to these six "policy makers" and, furthermore, our argument would be supported even more strongly by the evidence if our reference group was expanded to cover even larger groups of participants in the policy making and implementation process in China.

[52] Harry Harding addresses the question of the stability of the current leadership group in China in his contribution to this volume. See Harry Harding, "Political Options: Stability, Leadership, and Succession," in this volume.

All four of these very powerful members of China's leadership have agreed to support the economic reform program, at least until its economic *and political* results prove unacceptable. None of these individuals has advocated a reform program spelled out in complete detail, and the general principles of economic reform they advocate are not held as rigid, non-negotiable, fixed positions. The basic principle they agree upon is the need for economic reform and the consensus they will reach, I believe, will fall within the boundaries of a slightly modified Soviet-type economy (the state sector remains the dominant sector) at one extreme and a considerable modification of the Soviet-type economy (where the collective and private sectors have grown to the extent they dominate economic activities.) There remains, therefore, a considerable range of options open in the economic reform program in the future. Moreover, the members of the leadership group represent the range of the options available.

For example, Chen Yun—a major leader in the economic reform movement in the 1950s and 1960s—clearly advocates a moderate pace in reform of the Soviet-type economy, accepting or going along with the several reform experiments that have been adopted, but advising caution, especially in regard to the experiments with expanded private markets and with an open-door for Western participation in China's efforts to modernize the economy. It is true that as a member of the old guard, Chen is very old and a frequent visitor to the hospital. Yet as the major challenger to Mao in the realm of economic ideas and principles over the quarter of a century after 1949, Chen's arguments are highly respected by a considerable segment within the extended realm of the policy-making group in China today *and* among those who will replace the present generation among those groups as well.

At the other boundary of the consensus over the economic reform program is Zhao Ziyang. At an early stage of his rapid rise to becoming a member of the leadership group, i.e., while still the top political leader in the province of Sichuan, Zhao's speeches indicated he could be identified as a supporter of market socialist ideas. Not only has his advocacy of those ideas become more limited and cautious, Zhao's use of the term "reform" has been considerably redefined as well. Still representing the more radical of the reformers *among the leaders at the top*, Zhao clearly envisages a reform of the economic system so as to improve management by means of the use of economic levers (prices, taxes, etc.), while allowing for greater flexibility in planning and pricing, so as to achieve *greater* economic results within the confines of a socialist, planned economy. Such an economy could be described as a decentralized and flexible planned economy—a considerable modification of the centrally planned and rigidly controlled traditional Soviet-type economy. It would not, however, meet the conditions for being a pure market socialist economy in which the central planners were forced to accept the preferences and decisions of the local authorities and economic decision-makers.

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[53] For an analysis of the positions of these individuals in the debate over the economic reforms, see David Bachman, "Differing Visions of China's Post-Mao Economy: The Ideas of Chen Yun, Deng Xiaoping, and Zhao Ziyang," unpublished paper, Center for Chinese Studies, University of California, Berkeley, March, 1984. My ideas in this section of the paper have been influenced by Bachman's paper and also were informed by the participants at a workshop at the Center for Chinese Studies, University of Michigan, Spring, 1984, which discussed Bachman's paper and a paper on "China's Political Reforms: A Net Assessment," by Kenneth Lieberthal.

What about the preferences of Deng Xiaoping and Hu Yaobang as to the specific nature of China's future economic system? Deng Xiaoping is the unchallenged political leader in China today and Hu Yaobang his chosen successor. Both men have proven their dedication to the program of economic reform, but neither has provided many clues as to the detailed nature of the particular economic system they advocate. They advocate support for socialism, the Communist Party, Marxist-Leninist-Maoist thought, and economic results, i.e., the rapid economic modernization of China's economy by any means that fall within the accepted framework for the economic reforms. Because they are political leaders they seek quick results and will throw their support behind those experiments which succeed, while abandoning those that fail.

CONCLUSION

Developments in China since the publication of the previous Joint Economic Committee's publication of invited papers on China's economy, *China's Economy Under the Four Modernizations,* have fundamentally resolved the debate as to whether or not there was to be an economic reform of the Chinese economy. Economic reform is accepted and actively supported by all elements of the present leadership and the representatives of the generation most likely to succeed the current leadership group. The major unresolved questions regards the specific manner and extent to which the economic reform will alter China's economic system in the future. This essay has not attempted to spell out a prediction of China's economic system that will evolve in the future as a result of the current economic reform program. Rather, it has analyzed three features of the current scene that could be important determinants of that future: the extent to which the economic reform program already has changed China's economic system; the extent to which China's economic performance has improved over the past few years, and the extent to which the economic reforms already introduced are responsible for those improvements; and the extent to which the current leaders support or advocate a particular economic reform program.

Our analysis of these three features of the recent past and current scene in China does not preclude a "cautious" optimism in regard to the possibility of a radical modification of China's economic system to the point where the state-planned sector is reduced to a minimum. Equally important, however, our analyses of these three features also indicate that the future economic system is not predetermined *to any reasonable extent* on the basis of the reforms introduced thus far, the impact of those reforms upon economic performance in China, or the known views of China's leaders

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as to the specific form the economic reforms should take. Quite simply, the future does not lie in the past or present, but remains to be determined among a rather wide range of options. These options still remain feasible and consistent within the framework of the economic reforms implemented and advocated by China's leaders over the past few years.

TABLE 1A.—AVERAGE ANNUAL GROWTH RATE: NET MATERIAL PRODUCT[1]

Year (Y_t)	Net Material Product 1952=100	Average Annual Growth Rate for the Period[2]		
		Y_{t-1} to Y_t	1949 to Y_t	Y_t to 1983
1949	58.9			7.3
1950	70.1	19.0	19.0	6.9
1951	81.8	16.7	17.9	6.6
1952	100.0	22.2	19.3	6.2
1953	114.0	14.0	18.0	5.9
1954	120.6	5.8	15.4	5.9
1955	128.3	6.4	13.9	5.9
1956	146.4	14.1	13.9	5.6
1957	153.0	4.5	12.7	5.7
1958	186.7	22.0	13.7	5.1
1959	202.1	8.3	13.1	4.9
1960	199.2	−1.4	11.7	5.2
1961	140.0	−29.7	7.5	7.2
1962	130.9	−6.5	6.3	7.9
1963	144.9	10.7	6.6	7.7
1964	168.8	16.5	7.3	7.3
1965	197.5	17.0	7.9	6.7
1966	231.0	17.0	8.4	6.2
1967	214.3	−7.2	7.4	7.1
1968	200.4	−6.5	6.7	8.0
1969	239.1	19.3	7.3	7.3
1970	294.7	23.3	8.0	6.1
1971	315.3	7.0	7.9	6.1
1972	324.5	2.9	7.7	6.4
1973	351.4	8.3	7.7	6.2
1974	355.2	1.1	7.5	6.8
1975	384.7	8.3	7.5	6.6
1976	374.4	−2.7	7.1	8.0
1977	403.6	7.8	7.1	8.0
1978	453.2	12.3	7.3	7.1
1979	489.9	7.0	7.3	6.9
1980	514.5	6.1	7.2	7.5
1981	539.2	4.8	7.2	8.9
1982	579.1	7.4	7.2	10.4
1983	639.4	10.4	7.3	

[1] Net material product is defined as the gross value of output, less depreciation and material consumption, in agriculture, industry, construction, transport, and commerce.

[2] Calculated from index of net material product with 1952 equal to 100. Reason for using the index rather than the absolute values for net material product is that the absolute values were reported in "current prices," while the index was based on net material product in "comparable prices." The equation used to calculate the average annual growth rate was antilog of [log (NMP in end year/NMP in base year)/end year-base year].

Sources: State Statistical Bureau, Statistical Yearbook of China, 1984 (Beijing: Chinese Statistical Publishers, 1984), pp. 30.

TABLE 2A.—STRUCTURE OF NET MATERIAL PRODUCT[1]

[In percent]

(Y_t)	Material Product	Agriculture	Industry	Construction	Transport	Commerce
1949	100	68.4	12.6	0.3	3.3	15.4
1950	100	67.4	14.1	1.1	3.3	14.1
1951	100	63.6	16.9	1.8	3.6	14.1
1952	100	57.7	19.5	3.6	4.3	14.9

TABLE 2A.—STRUCTURE OF NET MATERIAL PRODUCT [1]—Continued

[In percent]

(Y_t)	Material Product	Agriculture	Industry	Construction	Transport	Commerce
1953	100	52.8	22.0	3.9	4.1	17.2
1954	100	51.9	23.2	3.5	4.3	17.1
1955	100	52.9	22.7	3.8	4.2	16.4
1956	100	49.8	24.0	6.2	4.2	15.8
1957	100	46.8	28.3	5.0	4.3	15.6
1958	100	39.3	35.9	6.1	5.3	13.4
1959	100	30.8	43.1	6.2	6.4	13.5
1960	100	27.2	46.3	6.5	6.9	13.1
1961	100	43.4	34.6	2.5	4.8	14.7
1962	100	48.0	32.8	3.5	4.1	11.6
1963	100	48.8	33.7	4.0	3.9	0.6
1964	100	47.1	36.2	4.3	3.8	8.6
1965	100	46.2	36.4	3.8	4.2	9.4
1966	100	43.6	38.2	3.7	4.2	10.3
1967	100	47.3	34.0	3.7	3.5	11.5
1968	100	50.5	31.7	3.1	3.5	11.2
1969	100	44.7	36.3	3.7	3.8	11.5
1970	100	41.3	40.1	4.1	3.8	10.7
1971	100	39.8	42.0	4.4	3.8	10.0
1972	100	38.9	43.1	4.1	3.9	10.0
1973	100	39.3	42.9	4.0	3.8	10.0
1974	100	40.5	42.0	4.2	3.6	9.7
1975	100	39.4	44.5	4.5	3.8	7.8
1976	100	41.0	43.3	4.9	3.8	7.0
1977	100	37.1	45.2	4.7	4.0	9.0
1978	100	35.4	46.8	4.1	3.9	9.8
1979	100	39.3	45.9	3.9	3.6	7.3
1980	100	39.8	45.8	4.6	3.2	6.6
1981	100	42.1	43.3	4.4	3.1	7.1
1982	100	44.6	42.2	4.6	3.1	5.5
1983	100	44.9	41.9	5.0	3.5	4.6

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[1] For the definition of net material product, see Note 1, Table 1A. The sectoral share of total net material product has been calculated on the basis of current prices.

Source: State Statistical Bureau, Statistical Yearbook of China, 1984 (Beijing: Chinese Statistical Publishers, 1984), p. 29.

TABLE 3A.—AVERAGE ANNUAL GROWTH RATE: NET MATERIAL PRODUCT IN AGRICULTURE [1]

Year (Y_t)	Net Material Product in Agriculture (1952=100) [2]	Average Annual Growth Rate for the Period [3]		
		Y_{t-1} to Y_t	1949 to Y_t	Y_t to 1983
1949	69.8			6.1
1950	81.9	17.3	17.3	5.7
1951	90.2	10.1	13.7	5.6
1952	100.0	10.9	12.7	5.4
1953	104.3	4.3	10.6	5.5
1954	108.5	4.0	9.2	5.5
1955	117.6	8.4	9.1	5.4
1956	126.4	7.5	8.9	5.3
1957	124.1	−1.8	7.5	5.6
1958	127.2	2.5	6.9	5.8
1959	107.9	−15.2	4.5	6.7
1960	93.9	−13.0	2.7	7.7
1961	105.3	12.1	3.5	7.5
1962	108.9	3.4	3.5	7.7
1963	122.6	12.6	4.1	7.4
1964	137.8	12.4	4.6	7.2
1965	158.1	14.7	5.2	6.8
1966	174.6	10.4	5.5	6.6
1967	175.7	0.6	5.3	7.0

TABLE 3A.—AVERAGE ANNUAL GROWTH RATE: NET MATERIAL PRODUCT IN AGRICULTURE [1]—Continued

Year (Y_t)	Net Material Product in Agriculture (1952=100) [2]	Average Annual Growth Rate for the Period [3]		
		Y_{t-1} to Y_t	1949 to Y_t	Y_t to 1983
1968	175.4	−0.2	5.0	7.5
1969	185.2	5.6	5.0	7.6
1970	210.9	13.9	5.4	7.1
1971	217.5	3.1	5.3	7.5
1972	218.8	0.6	5.1	8.1
1973	239.3	9.4	5.3	8.0
1974	249.3	4.2	5.2	8.4
1975	262.7	5.4	5.2	8.8
1976	266.0	1.3	5.1	9.9
1977	259.5	−2.4	4.8	12.1
1978	278.1	7.2	4.9	13.1
1979	333.7	20.0	5.4	11.5
1980	354.9	6.4	5.4	13.2
1981	393.4	10.9	5.6	14.5
1982	447.6	13.8	5.8	15.2
1983	515.4	15.2	6.1	

[1] For the definition of net material product, see Note 1, Table 1A.

[2] Estimate obtained by multiplying agriculture's share of total net material product in year t (Table 2A) times index of total net material product in year t (Table 1A); dividing that product by the product in 1952 (Table 2A) and the index of total net material product in 1952 (Table 1A); this quotient times 100.

[3] The equation used to calculate the average annual growth rate was antilog [log (NMP in agriculture in end year/NMP in agriculture in base year)/end year—base year].

TABLE 4A.—AVERAGE ANNUAL GROWTH RATE: NET MATERIAL PRODUCT IN INDUSTRY [1]

Year (Y_t)	Net Material Product in Industry (1952=100) [2]	Average Annual Growth Rate for the Period [3]		
		Y_{t-1} to Y_t	1949 to Y_t	Y_t to 1983
1949	38.1			11.1
1950	50.7	33.1	33.1	10.5
1951	70.9	39.8	36.4	9.7
1952	100.0	41.0	37.9	8.8
1953	128.6	28.6	35.5	8.2
1954	143.5	11.6	30.4	8.1
1955	149.4	4.1	25.6	8.3
1956	180.2	20.6	24.9	7.8
1957	222.1	23.3	24.7	7.3
1958	343.7	54.8	27.7	5.7
1959	446.7	30.0	27.9	4.8
1960	473.0	5.9	25.7	4.8
1961	248.4	−47.5	16.9	8.1
1962	220.2	−11.3	14.5	9.1
1963	250.4	13.7	14.4	8.9
1964	313.4	25.2	15.1	8.1
1965	368.7	17.7	15.2	7.6
1966	452.5	22.7	15.7	6.8
1967	373.7	−17.4	13.5	8.5
1968	325.8	−12.8	12.0	10.1
1969	445.1	36.6	13.1	8.4
1970	606.0	36.1	14.1	6.5
1971	679.1	12.1	14.0	6.1
1972	717.2	5.6	13.6	6.1
1973	773.1	7.8	13.4	5.9
1974	765.1	−1.0	12.8	6.7
1975	877.9	14.7	12.8	5.8
1976	831.4	−5.3	12.1	7.4
1977	935.5	12.5	12.1	6.6

TABLE 4A.—AVERAGE ANNUAL GROWTH RATE: NET MATERIAL PRODUCT IN INDUSTRY[1]—Continued

Year (Y_t)	Net Material Product in Industry (1952 = 100)[2]	Average Annual Growth Rate for the Period[3]		
		Y_{t-1} to Y_t	1949 to Y_t	Y_t to 1983
1978	1,087.7	16.3	12.3	4.8
1979	1,153.2	6.0	12.0	4.5
1980	1,208.4	4.8	11.8	4.4
1981	1,197.3	−0.9	11.4	7.1
1982	1,253.2	4.7	11.2	9.6
1983	1,373.9	9.6	11.1	

[1] For the definition of net material product, see Note 1, Table 1A.

[2] Estimates obtained by multiplying industry's share of total net material product in year t (Table 2A) times index of total net material product in year t (Table 1A); dividing that product by the product of industry's share of total net material product in 1952 (Table 2A) and the index of total net material product in 1952 (Table 1A); this quotient times 100.

[3] The equation used to calculate the average annual growth rate was antilog [log (NMP in industry in end year/NMP in industry in base year)/end year-base year].

TABLE 5A.—AVERAGE ANNUAL GROWTH RATE: NET MATERIAL PRODUCT IN SERVICES[1]

[Construction, transport, commerce]

Year (Y_t)	Net Material Product in Services (1952 = 100)[2]	Average Annual Growth Rate for the Period[3]		
		Y_{t-1} to Y_t	1949 to Y_t	Y_t to 1983
1949	49.1			6.1
1950	56.9	15.9	15.9	5.8
1951	67.0	17.8	16.8	5.5
1952	100.0	49.3	26.8	4.3
1953	126.0	26.0	26.6	3.6
1954	131.7	4.5	21.8	3.6
1955	137.3	4.3	18.7	3.6
1956	168.2	22.5	19.2	2.9
1957	167.1	−0.6	16.5	3.1
1958	203.1	21.5	17.1	2.4
1959	231.4	13.9	16.8	1.9
1960	231.5	0.0	15.1	2.0
1961	135.1	−41.6	8.8	4.7
1962	110.2	−18.4	6.4	5.9
1963	111.2	0.9	6.0	6.2
1964	123.6	11.2	6.4	5.9
1965	150.7	21.9	7.3	5.1
1966	184.4	22.4	8.1	4.1
1967	175.8	−4.7	7.3	4.7
1968	156.5	−11.0	6.3	5.9
1969	199.3	27.4	7.3	4.5
1979	240.4	20.6	7.9	3.3
1971	251.7	4.7	7.7	3.2
1972	256.2	1.8	7.5	3.3
1973	274.3	7.1	7.4	3.0
1974	272.6	−0.6	7.1	3.4
1975	271.7	−0.3	6.8	3.8
1976	257.8	−5.1	6.3	5.2
1977	313.3	21.5	6.8	2.7
1978	353.8	12.9	7.1	0.8
1979	318.0	−10.1	6.4	3.7
1980	325.0	2.2	6.3	4.2
1981	345.3	6.3	6.3	3.2
1982	335.3	−2.9	6.0	9.6
1983	367.4	9.6	6.1	

[1] For the definition of net material product, see Note 1, Table 1A.

[2] Estimates obtained by multiplying services' share of total net material product in year t (Table 2A) times index of total net material product in year t (Table 1A); dividing that product by the product of services' share of total net material product in 1952 (Table 2A) and the index of total net material product in 1952 (Table 1A); this quotient times 100.

[3] The equation used to calculate the average annual growth rate was antilog [log (NMP in services in end year/NMP in services in base year)/end year—base year].

TABLE 6A.—TIME TRENDS IN AVERAGE ANNUAL RATES OF GROWTH

	r	r = a + bt	R^2
1. National Income:			
Y_{t-1} to Y_t:			
1949/77	7.8	12.34 − 0.31t	0.05
1949/83	8.1	10.83 − 0.17t	0.03
1949 to Y_t:			
1949/77	10.5	17.00 − 0.45t	0.73
1949/83	9.9	15.78 − 0.33t	0.66
Y_t to 1983:			
1949/77	6.6	6.01 + 0.04t	0.13
1949/83	6.8	5.74 + 0.06t	0.30
2. Agriculture:			
Y_{t-1} to Y_t:			
1949/77	5.1	6.99 − 0.13t	0.02
1949/83	6.4	4.34 + 0.11t	0.02
1949 to Y_t:			
1949/77	6.7	10.79 − 0.29t	0.48
1949/83	6.5	9.73 − 0.19t	0.36
Y_t to 1983:			
1949/77	7.1	4.84 − 0.15t	0.71
1949/83	8.0	3.88 + 0.24t	0.74
3. Industry:			
Y_{t-1} to Y_t:			
1949/77	14.4	27.13 − 0.88t	0.12
1949/83	13.0	25.16 − 0.69t	0.12
1949 to Y_t:			
1949/77	20.0	33.87 − 0.94t	0.81
1949/83	18.7	31.76 − 0.75t	0.77
Y_t to 1983:			
1949/77	7.7	9.08 − 0.10t	0.25
1949/83	7.4	9.00 − 0.09t	0.25
4. Services:			
Y_{t-1} to Y_t:			
1949/77	8.3	15.64 − 0.51t	0.06
1949/83	7.4	14.68 − 0.42t	0.07
1949 to Y_t:			
1949/77	11.9	21.34 − 0.65t	0.67
1949/83	11.0	19.78 − 0.51t	0.64
Y_t to 1983:			
1949/77	4.1	4.20 − 0.01t	0.48
1949/83	4.2	4.27 − 0.01t	0.29

POLITICAL STABILITY AND SUCCESSION

By Harry Harding*

CONTENTS

	Page
Background to the Succession	52
Deng's Strategy for the Succession	55
Prospects	64
Postscript	69

SUMMARY

Deng Xiaoping's political succession strategy has contained four major elements: (1) to place his successors, General Secretary Hu Yaobang and Prime Minister Zhao Ziyang, in office before his death; (2) to reshuffle the Party, state, and military organizations so as to provide Hu and Zhao with a more solid base of political support; (3) to launch a rectification campaign to convince all Party members of the necessity for reform; and (4) to reinstitutionalize the Chinese political process in ways that will help protect his successors against serious challenge.

Deng's strategy has proved effective in a number of respects. He has been able significantly to narrow the range of views represented on the Chinese political spectrum, and has shifted the center of gravity on that spectrum toward greater support for reform. The political institutions so seriously damaged during the Cultural Revolution have been largely rebuilt, and the degree of factionalism among the central leadership has been substantially reduced. Deng's reform policies have been relatively successful, and his opponents have as yet proven unable to devise an attractive alternate program.

But Deng's succession arrangements still face serious difficulties. Representatives of more conservative viewpoints remain, albeit in reduced numbers, on influential Party and state bodies. The legitimacy of the succession arrangements Deng has devised is still heavily dependent on his own personal prestige and authority. And, perhaps most important, Deng's reform policies are, in the Chinese Communist context, every bit as radical as the policies of the Cultural Revolution. They are vulnerable to charges that they threaten China's economic stability, cultural integrity, and social equity.

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Despite these obstacles, the most likely succession scenario at present is a smooth transfer of power to Hu Yaobang and Zhao Ziyang, and their consolidation of power over the following years. It is relatively improbable, under present circumstances, for the succession arrangements to collapse immediately upon Deng's death, and it is only slightly more likely that they could be successfully challenged before he leaves China's political stage. But there is a significantly greater possibility that the succession will encounter difficulties after Deng's demise, particularly if the current reform policies produce unanticipated or unwelcome consequences.

Even if the succession does not proceed smoothly, however, the consequences are likely to be limited. Perhaps some reforms would be adjusted or abandoned, and perhaps others would be implemented more gradually than would otherwise be the case. But even the most pessimistic plausible scenario would foresee a return to a more orthodox Leninist political and economic system in China, rather than a revival of radical Maoism.

Communist systems have experienced two distinct types of political succession. The succession to some leaders—such as Brezhnev and Andropov—has been relatively smooth and stable. In these instances, the Politburo of the Communist Party has exhibited the ability to choose a successor rapidly and efficiently, if not necessarily creatively, on the death of the country's paramount leader. In this first kind of succession, the principal question has been *who* the successor would be, and it has often been possible for astute observers to answer that question in advance with a high degree of certainty. In other cases, however, succession has involved protracted struggles among competing contenders, sweeping purges of the losers in the conflict, and drastic changes in domestic and foreign policy. In this second type of succession—such as occurred upon the deaths of Lenin and Mao—the issue has been not only who would replace the former leader, but *how* the process of selection would actually unfold.[1]

The degree of instability associated with political succession depends in large part upon the level of institutionalization which the larger political system has achieved. Of particular importance is the degree to which there are viable political norms that restrict the power of individual leaders, specify their accountability to the Politburo as a whole, prescribe the procedures by which new leaders are chosen, ensure that most major institutions and interest groups have access to the forums of decision-making, and regulate the methods through which political conflict is waged and resolved. The weaker these norms, then the higher the stakes of political succession, and the more likely it is that the death of the predominant political leader will produce turbulence and disorder.

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[1] This discussion of succession in Communist systems is based, *inter alia*, on George W. Breslauer, "Political Succession and the Soviet Political Agenda," *Problems of Communism*, XXIX:3 (May-June 1980), pp. 34–52; Raymond F. Hopkins, "Political Constraints Shaping Succession," in *Symposium Proceedings: Perspectives on National Leadership Succession*, Report S-2 (Bethesda: Analytic Support Center, Mathematica, Inc., June 1975), pp. 34–36; Alfred G. Meyer, "Communism and Leadership," *Studies in Comparative Communism*, XVI:3 (Autumn 1983), pp. 161–69; Myron Rush, *How Communist States Change Their Rulers* (Ithaca: Cornell University Press, 1974); Myron Rush, "The Problem of Succession in Communist Regimes," *Journal of International Affairs*, 32:2 (Fall-Winter 1978), pp. 169–79; and M. George Zaninovich, "Yugoslav Succession and Leadership Stability," *Studies in Comparative Communism*, XVI:3 (Autumn 1983), pp. 179–90.

In addition, the nature of political succession is also altered by the fundamental generational change which seems eventually to occur in all Communist systems, whereby the older leaders of the revolutionary movement, many of whom remain committed to the utopian strains of Marxism-Leninism and to the continuous radical reordering of their society, are replaced by a younger bureaucratic leadership, who are concerned above all with the practical requirements of economic modernization and whose approach to politics is more gradualistic and consensual. Smooth political successions are more likely to occur in systems that have experienced this leadership transition than in those that have not.

To a certain extent, the mere aging of a Communist system increases its level of institutionalization, and fosters the replacement of revolutionaries by technocrats. Thus, it is in older systems, such as the contemporary Soviet Union, that political succession is relatively routine; while it is in younger states, such as Maoist China, that the undertaking has been more difficult. But the processes of political institutionalization and generational change can be accelerated or retarded by the actions of individual leaders. Some, such as Tito, encouraged both developments, and thereby facilitated a relatively smooth and effective succession. Others, such as Kim Il-sung, have thus far resisted both institutionalization and generational change, and have therefore increased the prospects for a turbulent succession.

The succession to Mao Zedong is a prototypical example of the kind of conflicted process characteristic of young, revolutionary Communist systems. The succession was both long and traumatic, spanning a twenty-six year period from 1956, when Mao began actively planning for his own demise or retirement, until 1982, when the new paramount leader, Deng Xiaoping, finally consolidated his political power. That quarter century witnessed the removal of no fewer than eight putative successors: Liu Shaoqi (ousted in 1966 and placed under detention in 1967), Lin Biao (killed while fleeing the country after an abortive *coup* in 1971), Deng Xiaoping (purged in 1976), the "Gang of Four" (arrested and imprisoned the same year), and Hua Guofeng (removed from the Politburo in 1982 after losing his Party chairmanship in 1981).

The extraordinary degree of instability associated with the succession to Mao Zedong is associated with all the factors identified in the discussion above. The Chinese political system was not highly institutionalized during the last ten years of Mao's life. The constraints on the exercise of personal authority were loose, the power of collective decision-making bodies had decayed, the norms governing political conflict were lax, and the procedures for selecting a successor to Mao were weak. As a result of the Cultural Revolution, life among the Chinese political elite had become not simply a competition for marginal advantage or a debate over policy alternatives, but a struggle for political, and even physical, survival.

Nor had much progress been made toward promoting generational succession. There had been, to be sure, an extensive turnover of leadership at both the central and provincial levels during the decade of the Cultural Revolution. But the effect of these purges was actually to retard both the rejuvenation and the professionalization of the Chinese bureaucracy. Not only were bureaucratic specialists removed in favor of revolutionary generalists, but the new leaders who emerged during the Cultural Revolution were for the most part of the same generation as those they replaced.[2]

What is particularly striking is the extent to which Mao's own attempts to manage the succession actually served to destabilize and disrupt the process. It was Mao who came to define the succession in personalistic terms as the transfer of relatively unlimited power to another individual for life. It was Mao who characterized the succession as part of a Manichaean struggle between the "capitalist" and "proletarian" roads in his country. And, above all, it was Mao's ambivalence about his choice of successor that led directly to the purges of Liu Shaoqi, Lin Biao, and Deng Xiaoping between 1966 and 1976. Mao's own actions ensured that Chinese politics were less institutionalized in 1976 than in 1956, and that the stakes of political conflict had become substantially greater.

But what of the succession to Deng Xiaoping? Is Deng's strategy for managing the succession likely to contribute to the institutionalization of Chinese politics, or, like Mao's, will it tend to destabilize political life in Peking? Will the succession to Deng be as chaotic as the succession to Mao, or as routine as the selection of a replacement to Chernenko? It is to these fundamental questions that this chapter is addressed.

BACKGROUND TO THE SUCCESSION

The death of Mao Zedong in September 1976, the arrest of the "Gang of Four" the following month, and the formal confirmation of the election of Hua Guofeng as Party chairman in July 1977 did not end the long struggle over the succession to Mao. Instead, the conflict merely entered a final phase, with Hua attempting to consolidate his power, and Deng Xiaoping trying to undermine it.

The basic issue in this contest concerned the attitude to be taken toward the Cultural Revolution—toward the policies it produced, the leaders who had benefitted from it, and the ideological premises on which it had been based. Hua Guofeng's strategy was to emphasize continuity with this recent past. His rise to power, after all, began with his promotion to a provincial leadership position during the Cultural Revolution, continued with his transfer to Peking after the purge of Lin Biao in 1971, and climaxed with Mao's personal endorsement in 1976. This history required that Hua defend both the memory of Mao and the legacy of the Cultural Revolution. As a result, Hua strongly associated himself with Mao's controversial "theory of continuing the revolution under the dictatorship of the proletariat," which had served as the doctrinal underpinning of the Cultural Revolution; pledged that he would "uphold whatever policy decisions Chairman Mao made and unswervingly carry out whatever Chairman Mao instructed"; and warned that further Cultural Revolutions would be necessary if China were again threatened by revisionism. To be sure, Hua sought to stabilize political life and reinvigorate the economy after ten years of Cultural Revolutionary chaos. But Hua's program did not envision any sweeping reform of the political and economic system that had existed at Mao's death.

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[2] David S.G. Goodman, "Changes in Leadership Policy After September 1976," in Jurgen Domes (ed.), *Chinese Politics After Mao* (Cardiff: University College Cardiff Press, 1979), pp. 37-69.

Deng Xiaoping, in contrast, promised a major break with China's recent past. As the second most prominent victim of the Cultural Revolution, Deng sought a complete repudiation of the movement, even if that required a corresponding devaluation of Mao's role in contemporary Chinese history and a total renunciation of the theoretical conceptions that lay behind the Cultural Revolution. Deng also wished—and Hua apparently resisted—a thoroughgoing rehabilitation of all the veteran officials who had lost power during the Cultural Revolution. What is more, as we will see, Deng made it clear that he favored a fundamental reform and restructuring of virtually every political and economic institution in the country.

Deng's attempt to undermine Hua Guofeng was both protracted and relentless. At first, it appeared that the two men had been able to forge a compromise, under which Hua would remain in office, but would accept many of Deng's policies. If such an understanding ever was reached, however, it soon collapsed. Deng first moved to add his own associates and allies to key positions in the Party, state, and government. He then mobilized an assault on several of Hua's leading supporters, securing the dismissal in 1980 of four Politburo members who, like Hua, had risen to prominence during the Cultural Revolution, and achieving the neutralization, later the same year, of the planners who had been responsible for Hua's scheme for launching a "second leap forward" in China's economy. Ultimately, Deng moved against Hua himself, securing his removal from the prime ministry in 1980, his resignation from the Party chairmanship in 1981, and then his departure from the Politburo altogether in 1982. Deng's success was capped by the Central Committee's adoption of a resolution on the history of the Party which not only repudiated the Cultural Revolution, but also the "leftist errors" allegedly committed by Hua Guofeng between 1976 and 1978.

By the Twelfth Party Congress in 1982, then, Deng had achieved both the humiliation of Hua Guofeng and the consolidation of his own power. Technically, Deng was only the third ranking member of the Politburo. He held but two formal positions: chairman of the Central Military Commission, and chairman of the newly created Central Advisory Commission. To a greater degree than Mao, he had to act in consultation with other senior colleagues, not all of whom agreed with him on every issue. But Deng was nonetheless universally acknowledged to be China's paramount leader, who, in Doak Barnett's words, "personally remains the ultimate source of decision-making authority, involved in all really major decisions." [3]

With this, the central issue in Chinese politics changed from the evaluation of the past to the development of a strategy for the future. Ever since 1978, under the slogan of the "emancipation of the mind," Deng has advocated a sweeping reform of China's political and economic systems. This complex package has included proposals for a thorough restructuring and restaffing of the Chinese bureaucracy, a reduction in the priority traditionally given to heavy industry, a greater attention to consumer demands, a sharp increase in China's economic interaction with the rest of the world, greater tolerance of intellectual and cultural expression, and the growing use of economic criteria and financial levers to manage the economy. All in all, Deng's reforms promised to give the economy greater autonomy from the plan, the government greater autonomy from the Party, and society greater autonomy from the state.

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[3] A. Doak Barnett, "A Peek at China's Foreign Policy Process," *New York Times*, August 13, 1984, p. A23.

Reforms of this magnitude were bound to be controversial. They threatened, to a greater or lesser degree, the interests of no fewer than four of the great organizational "systems" that constitute the contemporary Chinese political order: (1) the Party establishment, particularly the propaganda organs, which is threatened by the declining relevance of ideological orthodoxy and revolutionary leadership under Deng's reform; (2) the public security system, which fears the rise of dissent, crime, and disorder that appear to accompany some of the reforms; (3) important segments of the People's Liberation Army, which share the Party's skepticism about the consequences of political liberalization, fear the effects of economic reform on their ability to attract skilled recruits, and resent the constraints that have been imposed on the military budget in the name of civilian modernization; and (4) the heavy industrial ministries and the central planning establishment, which see their resources and influence restricted by the new emphases on consumerism and market mechanisms. Moreover, many local officials—whether former commune cadres who see their power drastically reduced by what is tantamount to the decollectivization of agriculture, or provincial officials who interpret the new system of industrial taxation as a disguised mechanism for strengthening central control over local finances—are aware of the ways in which recent reforms may challenge their interests.

Thus the Chinese political spectrum today can be divided roughly into three segments, according to the assessment of the desirability of Deng's reform program.[4] To the left are the *conservatives,* associated with Ye Jianying and Li Xiannian, who favor retention, although in a more regularized form, of many of the economic, social, organizational, and ideological doctrines associated with the late Mao Zedong. To the right are the *radical reformers,* associated with Deng Xiaoping, who are willing to make more bold and sweeping changes in China's socialist heritage in the direction of greater economic, political, and social liberalization. In the middle of the spectrum are the *moderate reformers,* associated with Peng Zhen and Chen Yun, who seek largely to restore, with some modification, the Leninist political and economic order that prevailed in China in the mid-1950s and early 1960s. For these moderate reformers, the watchword is neither revolutionization nor liberalization, but rather stability, order, and control.

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[4] I have borrowed the terminology employed in Carol Lee Hamrin's chapter in this volume, which provides further details about these three policy "packages." See also her "Competing 'Policy Packages' in Post-Mao China," *Asian Survey,* XXIV:5 (May 1984), pp. 487–518. For a complementary description of the three positions on the Chinese political spectrum, albeit one employing different labels, see Dorothy J. Solinger, "The Fifth National People's Congress and the Process of Policy Making: Reform, Readjustment, and the Opposition," *Asian Survey,* XXII:12 (December 1982), pp. 1238–75.

In short, Deng's attempts to undertake political and economic reform have been complicated by the fact that his vision for China's future includes proposals for radical change that challenge powerfully entrenched organizational interests. In his battle for power with Hua Guofeng, when the issue concerned the fate of the Cultural Revolution, Deng was able to forge a triumphant coalition of leaders who sought a clear break with the past. But when the Chinese political agenda came to focus on Deng's reforms, that coalition began to fragment, with important differences emerging between those leaders who enthusiastically endorsed Deng's proposals for liberalization, and those who favored more moderate and less sweeping adjustments in the Chinese political and economic system.

DENG'S STRATEGY FOR THE SUCCESSION

In the summer of 1982, when Deng achieved the final consolidation of his power at the Twelfth Party Congress, he had just reached the age of seventy-eight. Deng's attempt to achieve radical reform has been intimately intertwined, therefore, with his efforts to arrange his own succession. Deng's overall strategy has contained four major elements: (1) to identify a collective leadership that he hopes will succeed him, and to place his successors in office before his death, (2) to reshuffle the Party, state, and military organizations, so as to provide his successors with a more solid base of political support, (3) to create a set of political doctrines that will explain and justify his program of reform, and to launch a rectification campaign to educate all Party members in those ideological principles, and (4) to resurrect a set of political norms that, by institutionalizing the Chinese political process, will help protect his successors against serious challenge.

Deng has identified two men to share principal leadership responsibilities after his death or full retirement. They are Zhao Ziyang, who replaced Hua Guofeng as Prime Minister in 1980; and Hu Yaobang, who succeeded Hua as head of the Party apparatus the following year. Hu and Zhao are now responsible for the day-to-day supervision of the Party and government bureaucracies, with Deng having withdrawn to a somewhat less visible, but still politically potent, "advisory" position.

Hu Yaobang, born in Hunan in 1915, has had close ties to Deng Xiaoping for about forty years. A veteran of the Long March, Hu served with Deng in military units in the Taihang mountains in the early 1940s, and in southwest China later in the decade. After 1949, Hu occupied a number of important civilian posts in the southwest, where Deng was secretary of the regional Party bureau and vice-chairman of the regional government. In 1952, both men were transferred to Peking, with Deng serving ultimately as secretary-general of the Party, and Hu as first secretary of the Communist Youth League. Both were dismissed from office during the Cultural Revolution, but soon after Deng's rehabilitation in 1973, he placed Hu in charge of the Academy of Sciences. Both Deng and Hu were purged again in April 1976, during the intense leadership conflicts following the death of Zhou Enlai, but were restored to office after the purge of the "Gang of Four." In the late 1970s, Hu successively directed the Party's central organization and propaganda departments before becoming head of the Party Secretariat in 1980. He replaced Hua Guofeng as Party chairman in 1981, holding that post until its abolition the following year.[5]

The second of Deng's successors, Prime Minister Zhao Ziyang, was born in Henan province in 1919, and has made his career as a provincial administrator, particularly in south China. Between 1949 and 1966, Zhao served in Guangdong province, first as a member of the South China Sub-Bureau of the Communist Party, and then as a member of the Guangdong provincial Party committee. In 1965, he was apointed first Party secretary in Guangdong, but he was purged during the Cultural Revolution as a "capitalist roader." In 1971, Zhao was rehabilitated. He served initially as a Party secretary in Inner Mongolia, but soon was sent back to Guangdong, where he regained his position as first Party secretary in 1974. The following year, he was transferred to Sichuan, China's most populous province, to head its Party committee. In the late 1970s, Zhao led Sichuan in experimenting with a number of reforms in both industry and agriculture that were later adopted on a nationwide basis. He moved to Peking in 1980, becoming a vice-premier in April, and succeeding Hua Guofeng as prime minister the following September.[6]

It is still somewhat early to evaluate Deng's selection of these two men, but it is possible to speculate that the appointment of Hu Yaobang as general secretary has been more controversial than that of Zhao Ziyang as prime minister. Although Zhao lacks the broad set of political contacts that would have come with longer service at the national level, he has had extensive experience as the chief Party administrator in two of China's most important provinces. And while personally committed to reform, particularly in the economic sphere, Zhao enjoys a reputation as a man who loyally implements the policies that have been collectively determined by the top Party leadership. He has earned respect for his personal qualities, his administrative skills, and his collegial style.

Hu Yaobang's background and personality, in contrast, are a bit more problematic. Hu's principal qualification to assume the leadership of the Party apparatus is his long service as head of the Communist Youth League. This allowed him to construct a wide network of personal associations that spans all major organizations in China. In addition, the position certainly prepared him well to manage the internal affairs of the Party, for the Youth League is a virtual microcosm of its parent organization. But Hu has had considerably less experience in dealing with the wide range of social, economic, and foreign policy matters that are the responsibility of the general secretary of the Party. In these areas, his only relevant assignments in the past have been short stints as an administrator in Sichuan in the early 1950s, as acting first Party secretary in

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[5] Shu-shin Wang, "Hu Yaobang: New Chairman of the Chinese Communist Party," *Asian Survey*, XXII:9 (September 1982), pp. 801-22.

[6] David Shambaugh, *The Making of a Premier: Zhao Ziyang's Provincial Career* (Boulder: Westview Press, 1984).

Shaanxi in 1965, and as *de facto* head of the Academy of Sciences in the mid-1970s. Moreover, Hu's rather hyperkinetic style differs from the more reserved personality generally considered appropriate for senior Chinese leaders, and he has garnered a reputation for making idiosyncratic and spontaneous statements that sometimes depart from established Party policy.

As a second element of his succession strategy, Deng has sought to provide Hu and Zhao with a firm political base, so that they can consolidate their leadership after his death. At the center, this has involved attempts to restaff the Central Committee, the Politburo, the Party Secretariat, and the State Council with younger, better educated leaders who are committed to reform and who will be loyal to Hu and Zhao. At lower levels, it has involved a sustained, ongoing drive to restructure and restaff the Party, state, and military bureaucracies.

The results have been particularly striking on the Central Committee. Indeed, the degree of turnover of personnel that occurred at the Twelfth Party Congress in 1982 was almost unprecedented. Fully 57% of the members of the 11th Central Committee, elected during Hua Guofeng's ascendancy in 1977, failed to receive reelection to the 12th. The rate of purge engineered by Deng Xiaoping, therefore, was very nearly equal to that which followed the Red Guard phase of the Cultural Revolution (69%), and was significantly greater than the rate of turnover occasioned by either the fall of Lin Biao (24%) or the purge of the "Gang of Four" (38%).[7]

What is more, the new appointees to the Central Committee were of a substantially different stripe than those whom they replaced. Of the some 200 new full and alternate members, two-thirds were under the age of 60, and the youngest was, at the time of election, 38.[8] According to William Mills' careful analysis, the "typical new appointee [to full membership on the Central Committee] is a virtually unknown minister or vice minister who apparently rose through the ministerial ranks by virtue of his administrative and technical ability." Many of the alternate members came from similar backgrounds, along with a number of non-governmental specialists, such as writers, artists, and scientists.[9]

A further significant change in Central Committee membership has been the decline of the military. The level of military representation, which, under Lin Biao, peaked at 43% on the 9th Central Committee, and then declined to around 30% on both the 10th and the 11th, dropped to 19% on the 12th, comparable to the level on the 8th Central Committee in 1956. Not only did this further the process of restoring the "normal" military-civilian balance in Chinese politics, but, more importantly for our analysis here, it also reduced the representation on the Central Committee of an institution which is believed to have serious reservations about the reforms proposed by Deng, Hu, and Zhao.

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[7] These purge rates refer to the turnover of the members of the Central Committee at the Ninth (1969), Tenth (1973), and Eleventh (1977) Party Congresses, respectively. The ratios are drawn from Hong Yung Lee, "China's 12th Central Committee: Rehabilitated Cadres and Technocrats," *Asian Survey*, XXIII:6 (June 1983), pp. 673-91.

[8] *Ibid.* See also Xinhua, September 11, 1982, in *Foreign Broadcast Information Service Daily Report: China* [hereafter cited as *FBIS*], September 13, 1982, p. K15.

[9] William deB. Mills, "Generational Change in China," *Problems of Communism*, XXXII:6 (November-December 1983), p. 22.

This important change—toward a younger, better educated, more civilian Central Committee membership—was facilitated by transferring a large number of former Central Committee members and alternates to a new Central Advisory Commission (CAC), created at the 12th Party Congress for precisely this purpose. Of the 206 members of the 11th Central Committee who did not survive to the 12th, about 60 were shifted to the CAC. Some of these transferees were chosen because of their advanced age, and others were removed from the Central Committee for political reasons. But for both categories of cadres, being transferred to the new advisory body rather than dismissed altogether softened the blow of their demotions.[10]

A similar pattern has been apparent on the Party Secretariat. The Twelfth Party Congress removed more than half of the members who had been appointed to the body at its recreation in 1980, including a number of rather senior civilian and military officials, and appointed seven new secretaries to take their place. As with the restaffing of the Central Committee, age was a major factor in the readjustment of the Secretariat, with four of the oldest secretaries being moved to the Politburo, where they have less responsibility for the day-to-day affairs of the Party. But politics seemed to be the chief cause of two other reassignments: Wang Renzhong and Peng Chong, both in their late 60s, were removed from the Secretariat and transferred to less influential positions, possibly because they had expressed reservations about some of Deng Xiaoping's reform programs, and possibly because they posed a potential political threat to Hu Yaobang or Zhao Ziyang.[11]

Of the twelve members elected to the Secretariat in 1982, a clear plurality, and most likely an absolute majority, appeared committed to radical reform.[12] Two of those twelve—Hu Qili (born in 1929) and Qiao Shi (born in 1924)—were younger cadres who are being groomed as possible successors to Hu Yaobang. But the Secretariat still held at least two men who have been associated with more conservative programs: Deng Liqun, closely linked with the campaign against spiritual pollution in late 1983, and Yu Qiuli, tied to the economic policies of Hua Guofeng in the late 1970s. What is more, the two men occupied the most important positions in China's propaganda network, with Deng Liqun serving as director of the Party's Propaganda Department, and Yu acting as head of the PLA's General Political Department.

The executive committee of the State Council, consisting of the premier, the four vice-premiers, and ten state councillors (equivalent to a vice-premier without portfolio), has also seen substantial turnover since the late 1970s. Premier Hua Guofeng has, of course, been replaced by Zhao Ziyang. Of the eighteen vice-premiers in office at the beginning of 1980, only seven remained on the State Council at the end of 1984: two (Wan Li and Yao Yilin) as vice-premiers, and five as state councillors.[13] The two new vice-premiers added in 1983, Tian Jiyun and Li Peng, are highly visible representatives of an emerging "third generation" of experienced technocrats who are now assuming key positions at the second echelon of the Chinese bureaucracy. Tian, the secretary-general of the State Council, has had a career as a provincial financial administrator, serving under Zhao Ziyang in Sichuan during the experiments with industrial reform undertaken there in the late 1970s. Li Peng, who is responsible for national energy policy, received advanced training in electrical engineering in the Soviet Union, and has had experience as both a power plant manager, a regional power administration official, and an official of the central Ministry of Electric Power.[14]

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[10] *Ibid.*, pp. 29-31.

[11] Richard Nethercut, "Leadership in China: Rivalry, Reform, and Renewal," *Problems of Communism*, XXXII:2 (March-April 1983), pp. 42-43.

[12] Identifying members of any particular opinion group in the Chinese leadership is necessarily a difficult and speculative undertaking. Nonetheless, it is plausible that, of the members of the Secretariat, Hu Yaobang, Wan Li, Chen Pixian, Hu Qili, Qiao Shi, and possibly Xi Zhongxun and Hao Jianxiu belong to the radical reform group. In contrast, only Deng Liqun and Yu Qiuli appear to have affiliated themselves with the conservative position.

As a result of these dismissals and appointments, the executive committee of the State Council, like the Party Secretariat, has been largely free of conservative influence. Of its fifteen members, only two—Kang Shien and Chen Muhua—can be regarded as possible opponents of reform. Less clear, however, is whether the rest are as actively committed to radical reform as Deng might like, or whether they qualify as moderate reformers, who favor more marginal adjustments to the prevailing system of state ownership, central planning, and administered prices.[15] It is likely, in fact, that the State Council represents more a coalition of moderate and radical reformers than a unified bulwark of economic and political liberalization.

Although Deng made some progress in altering the composition of the Politburo in 1982, he was less successful there than in any of the other central Party and state bodies. To be sure, Deng was able to eliminate all but two of the beneficiaries of the Central Revolution who joined the Politburo at the 9th or 10th Party Congresses, and both these men, Li Desheng and Ni Zhifu appear to have maintained their positions because they made a political accommodation with Deng Xiaoping.[16] In addition, Deng added to the Politburo a number of new members who have strongly supported his program for radical reform. These include Hu Yaobang (added in

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[13] Of the eighteen vice-premiers in 1980, one (Zhao Ziyang) was promoted to the prime ministry, five (Fang Yi, Gu Mu, Kang Shien, Chen Muhua, and Ji Pengfei) were appointed as state councillors, two (Wan Li and Yao Yilin) remained in their posts, two (Geng Biao and Wang Renzhong) were transferred to the Standing Committee of the National People's Congress, one (Yu Qiuli) became head of the General Political Department of the armed forces, six (Bo Yibo, Chen Yun, Deng Xiaoping, Li Xiannian, Wang Zhen, and Xu Xiangqian) resigned on grounds of advanced age, and one (Chen Yonggui) was dismissed.

[14] Christopher M. Ciarke, "China's Third Generation," *China Business Review*, 11:2 (March-April 1984), pp. 36-38.

[15] Of the fifteen members of the executive committee, only six—Zhao Ziyang, Wan Li, Li Peng, Tian Jiyun, Zhang Aiping, and Wu Xueqian—are considered to be radical reformers or close personal associates of Hu Yaobang. Nonetheless, these radical reformers occupy the prime ministry and three of the four vice premierships

[16] The six beneficiaries of the Cultural Revolution who have been dropped from the Politburo are Hua Guofeng, who has been demoted to full membership on the Central Committee; Chen Xilian and Wu De, who have been moved to the Central Advisory Commission; Wang Dongxing, who was pointedly elected as the lowest-ranked alternate member of the Central Committee; and Ji Dengkui and Chen Yonggui, who have left central leadership positions altogether.

December 1978), Zhao Ziyang (made a full member in September 1979), and Wan Li (added at the Twelfth Congress in 1982).

But there were limits to Deng's victories. To begin with, he was unable to persuade a number of veteran Party cadres, most of whom appeared to be relatively unenthusiastic about thoroughgoing reform, to accept transfer from the Politburo to the Central Advisory Commission at the Twelfth Party Congress. Indeed, only two senior Politburo members—Xu Shiyou and Geng Biao—took this "opportunity to retire gracefully";[17] while four other octogenarians—Ye Jianying, Nie Rongzhen, Xu Xiangqian, and Peng Zhen—insisted on remaining on the Politburo.

Unable to secure the retirements of such elderly marshals as Ye, Nie, and Xu, Deng Xiaoping sought to balance them with younger commanders who are more loyal to him personally. Thus Yang Shangkun, Yang Dezhi, and Qin Jiwei were added to the Politburo at the Twelfth Party Congress. Because of this, the Politburo had a much higher level of military representation (29%) than the Central Committee as a whole (19%). Indeed, the level of military representation on the Politburo elected in 1982 (eight of 27) was only slightly lower than on the Politburo elected in 1977 (nine of 26), and about the same as that on the Politburo chosen after the purge of Lin Biao in 1973 (seven of 25).

Furthermore, the Politburo coalition that Deng assembled to demote Hua Guofeng and his supporters has partially disintegrated since the Twelfth Party Congress. Some, like Hu and Zhao, have been enthusiastic about rapid reform. But others have sought more gradual adjustments in China's political and economic order, with Chen Yun leading those who warn of the dangers of sweeping changes in economic institutions, and Peng Zhen spearheading those who are concerned about the consequences of political and intellectual liberalization.

The net result of all these developments was a twenty-seven member Politburo that remained divided among a small group of conservative military officers and economic planners who had been associated with Hua Guofeng; a somewhat larger group of moderate reformers associated with Chen Yun and Peng Zhen; and a comparable group of radical reformers associated with Deng Xiaoping.[18] Holding the balance was a group of five military commanders who will probably be loyal to Deng during his lifetime, but whose longer-term predelictions are uncertain.[19] Thus the radical reformers enjoyed at best a plurality, and certainly not a majority, on the Politburo.

Deng and Hu have dealt with this problem by attempting to downgrade the Politburo's role in Chinese politics. Traditionally, the Politburo was the single most important policy-making body in China, with the Secretariat responsible for preparing documents for Politburo consideration and for supervising the implementation of the Politburo's decisions. Now, the Secretariat appears to be expanding its duties, assuming in the process greater responsibility for the formulation, as well as the implementation, of Party policy. Zhao Ziyang told Doak Barnett that the Politburo, which foreigners earlier assumed met approximately once a week, now meets infrequently and irregularly, and that the Standing Committee of the Politburo, which was earlier believed to meet several times a week, does not convene as a collective body at all.[20] Symbolic of this reallocation of power between the Party's two central policy-making bodies is the elimination of the post of Party chairman (who presided over the Politburo), and the transfer of his leadership responsibilities to the general secretary (who chairs the Secretariat).

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[17] Mills, "Generational Change in China," *loc. cit.*, at p. 29

[18] The conservatives probably include Ye Jianying, Li Xiannian, Yu Qiuli, and Chen Muhua; the moderate reformers: Chen Yun, Peng Zhen, Hu Qiaomu, Wang Zhen, Wei Guoqing, and Yao Yilin; and the radical reformers: Deng Xiaoping, Zhao Ziyang, and Wan Li, and probably Song Renqiong, Ulanhu, Xi Zhongxun, Yang Shangkun, and Qin Jiwei

[19] The five are Nie Rongzhen, Xu Xiangqian, Yang Dezhi, Li Desheng, and Zhang Tingfa.

Beyond the central Party and state organs, Deng and the reformers have also been attemping to create a solid basis of support within the major bureaucracies—Party, state, and army—that govern contemporary China. This effort, discussed in greater detail in Christopher Clarke's contribution to this volume, involves the reduction of the number of Party and state bureaucratic agencies, the diminution of the number of personnel, the clear specification of responsibilities for each office, the retirement of superannuated officials, the retraining of middle-aged cadres, and the recruitment or promotion of new officials who are younger and better educated.

The available evidence suggests that the restructuring has led to significant turnover within the bureaucracy. While statistical data remain incomplete, the figures for top-ranking personnel at the central and provincial levels may be illustrative. By June 1983, fully thirty-three out of thirty-seven cabinet ministers, ten of twenty-nine provincial first Party secretaries, twenty-two of twenty-nine chairmen of provincial people's congresses, twenty-six of twenty-nine heads of provincial government, six of eleven military region commanders, and twenty of twenty-eight military district commanders had been removed from office.[21] A second round of personnel changes was launched in mid-1985.

Moreover, the effects of restructuring on the age and level of education of bureaucratic officials have been impressive. The average age of key officials in the central Party apparatus has fallen to around 60 (from the mid-60s), in the central state bureaucracy and the provinces to the mid 50s (from the early 60s), and in prefectures and cities to around 50 (from the late 50s). The proportion of cadres having college education has risen to about 50% (from 36–38%) in central government agencies, to about 43% (from 20%) in provincial offices, and to about 40% (from around 15%) in cities and prefectures. A total of twenty thousand cadres under the age of fifty-five have been promoted to leading posts from the central to the county levels since 1982, and another 120,000 have been identified as a "reserve force" of officials who are being groomed for future advancement.[22] It is likely, although by no means certain, that these new leaders are more favorably disposed toward reform than were their predecessors.

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[20] Barnett, "A Peek at China's Foreign Policy Process," *loc cit.* Nonetheless, the Politburo retains the power to determine overall Party policy, and individual members of the Politburo still hold great personal authority.

[21] Kazuko Mori, "First Session of 6th NPC—Groundwork for Post-Deng Era," *JETRO China Newsletter* (Tokyo), no. 46 (June 1983), pp. 8–14; and Christopher M. Clarke, "China's Reform Program," *Current History*, 83d:494 (September 1984), pp. 254–56, 73.

[22] Xinhua, September 10, 1984, in *FBIS*, September 10, 1984, pp. K12–13.

Despite these accomplishments, Deng has as yet been unable to make several key appointments in the central propaganda and military spheres. Two relatively conservative leaders—Deng Liqun and Hu Qiaomu—still have strong influence over the Party's propaganda and ideological affairs. Yu Qiuli, also believed to be skeptical about reform, heads the General Political Department of the PLA. And Deng himself continues to chair the Central Military Commission, reportedly because he cannot obtain the military's approval for his resignation in favor of Hu Yaobang.

The restructuring of the bureaucracy was followed by the third aspect of Deng's succession strategy: a three-year Party rectification campaign, launched at the Second Plenum in 1983. This ambitious drive has been designed not only to end corruption and abuse of power in the Party, but also to create greater "ideological and political unity" among the ranks of the forty million Party members.

Originally, rectification was to be directed both against the "leftist" tendencies of the Cultural Revolution and against the trends toward "bourgeois liberalization" of more recent times. This decision, reflecting a compromise between the more conservative and the more reform-minded forces in the Politburo, necessarily complicated the conduct of the campaign, for excessive zeal in opposing "leftism" and supporting Deng's "emancipation of the mind" could easily be labelled as reflecting a degree of "bourgeois liberalization." Indeed, in late 1983, during the height of the criticism of "spiritual pollution," several Party leaders seemed to imply that "rightist" deviations were a more serious threat than were "leftist" tendencies.

The campaign against spiritual pollution was cancelled, however, when it threatened to alienate large numbers of young people and intellectuals, to undermine the Party's reform program in rural areas, and to alarm foreign investors. Thereafter, it has been clearly specified that "leftist" ideas are a more serious danger to the Party than "rightist" ones, and, in fact, some authoritative editorials on the rectification campaign have failed to make any reference to the need to combat liberalization, bourgeois influences, or other forms of ideological deviation from the right. The principal themes of the rectification movement are now to thoroughly repudiate the Cultural Revolution, and to build support for Deng's reforms.

Although the rectification campiagn is still underway, some important trends are already apparent. To begin with, the campaign is being conducted with a degree of resoluteness and zealousness that substantially exceeds some original forecasts. The earliest Party documents outlining the strategy for rectification, for example, implied that higher level Party committees were to dispatch work teams to the lower levels only under extraordinary circumstances. In fact, a substantial number of liaison teams have been sent out to investigate the course of the campaign and, in some cases, to take direct control of it. In addition, there is evidence that the central Party authorities are carefully monitoring the results of the campaign in the provinces to ensure that the work of rectification is not being undertaken in a desultory manner. Indeed, several provincial Party committees have had to issue public self-criticisms for their failure to pursue rectification with sufficient vigor.

Nonetheless, the ultimate effect of the rectification campaign will probably be less than Deng Xiaoping and his followers have hoped. By identifying so many targets—from nepotism, corruption, and factionalism to conservative policy preferences—the leaders of the campaign have probably guaranteed that they will be able to deal thoroughly with none of them. It seems that relatively few people, probably no more than 40,000, will actually be expelled from the Party during its final stage, now scheduled for 1986. Above all, while it may be possible to reduce the influence of leftist ideology within the Party, it will be far more difficult to eliminate the power of more mainstream ideas—ideas which favor neither the return to Maoist policies nor the implementation of Dengist reforms, but rather the maintenance of an orthodox Leninist political and economic order—especially given the fact that such ideas are still well-represented on the Politburo.

The final aspect of Deng's succession strategy is his effort to reestablish what Frederick Teiwes has called the traditional "rules of the game" of Chinese Communist politics. These norms—most notably the principles of collective leadership, protection of the rights of minorities, prohibition against factionalism, and Leninist Party discipline—were codified during the Yan'an rectification of 1942–44 and reiterated during the early 1950s, but were then shattered by Mao Zedong during the Cultural Revolution.[23] After Mao's death in 1976, Hua Guofeng and Deng Xiaoping both called for their resurrection, in the common hope of restoring predictability, stability, and unity to Chinese politics.

But Deng has also intended that the revitalization of these traditional political norms would also increase the likelihood of a smooth succession, by both reducing the stakes and increasing the durability of the succession arrangements. By reemphasizing the principles of collective leadership and protecting the rights of political minorities, Deng is assuring the Party that Hu Yaobang and Zhao Ziyang will not act arbitrarily after he dies, and that a broad spectrum of opinion will be respected. At the same time, by reasserting the rules of Party discipline and the prohibition against factionalism, Deng is also trying to protect Hu and Zhao from a challenge by an minority within the Party. In short, Deng is constructing an institutional structure that will facilitate his successors' consolidation of power, but will simultaneously limit their exercise of personal authority.

And yet, Deng's words sometimes contradicted his deeds. He has claimed to protect the norms of democratic centralism, and yet he dealt with Hua Guofeng, the Party chairman, in a rather abrupt and high-handed manner; in the course of his struggle with Hua, he denied the right of any leader to select his own successor, and yet he has done precisely that himself; and he has denounced factionalism, and yet he has tolerated, if not encouraged, Hu Yaobang's efforts to strengthen his own political position by placing his own associates in key posts. In short, despite Deng's efforts to reinstitutionalize the Chinese political system, the process remains incomplete and the results are still untested.

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[23] These norms are thoroughly and perceptively analyzed in Frederick C. Teiwes, *Leadership, Legitimacy, and Conflict in China: From a Charismatic Mao to the Politics of Succession* (Armonk: M.E. Sharpe, 1984), ch. III.

PROSPECTS

Given this strategy, what are the prospects for Chinese politics after the death of Deng Xiaoping? Are the arrangements Deng has made for his own succession likely to be effective? Or, despite Deng's best efforts, will the succession be turbulent? By way of summary, let us first review the factors that favor and hinder a smooth succession. We will then conclude with an assessment of the prospects for difficulties over the course of the process.

On the positive side, Deng has several significant accomplishments to his credit. To begin with, he eliminated from the Politburo and the Central Committee virtually all those associated with the Cultural Revolution or with the more conservative economic programs adopted by the Hua Guofeng regime in the period 1977-78. The reorganization of the Secretariat and the State Council, the restructuring of the Party and state bureacracies, and the rectification of the Party are also helping to build a more secure political base for Hu and Zhao. Deng has significantly narrowed the range of views represented on the Chinese political spectrum, and has shifted the center of gravity on that spectrum markedly in the direction of support for reform.

Second, Deng has succeeded in rebuilding many of the political institutions that Mao so severely damaged after the collapse of the Great Leap Forward. There are now regularized systems for decisionmaking that provide a greater role for expert judgment and greater opportunities for consultation with affected interests. Debate over policy is once again regarded as a normal aspect of political affairs, rather than a reflection of class struggle within the Party. Political life is thus more predictable, less arbitrary, and more open than in the three previous decades. And all this has significantly reduced the intensity of political conflict in post-Mao China.

As a result of these first two accomplishments, Chinese politics, at least at the highest levels, is significantly less faction-ridden than it was a decade ago. While there are clearly differences of opinion among members of the Politburo—a phenomenon that should be considered normal in any political system, let alone one with the size and complexity of China's—these have not yet crystallized into true factions: groups bound tightly together by bonds of personal loyalty, whose principal purposes are to preserve and expand their political power, rather than to advance particular policy positions.

Fourth, Deng's reform package has thus far been relatively successful. Economic growth rates—in agriculture, industry, commerce, and foreign trade—have been impressive. Living standards have improved substantially. The gap between city and countryside has narrowed, rather than widened. Intellectual and cultural activities still operate within constraints established by Party policy, but those limits are more liberal than at any time since the early

1950s. In foreign affairs, China has forged a close relationship with Japan and Western Europe, dramatically improved its ties with most states in Asia, consolidated its relations with the United States, opened new lines of communication with Eastern Europe, negotiated the recovery of China's sovereignty over Hong Kong, and engaged in a significant reduction of tensions with the Soviet Union. All these accomplishments have created a strong base of popular support for Deng's reforms, including large numbers of peasants, intellectuals, and urban youth.

What is more, those who are skeptical about reform have not yet been able to devise an attractive alternate program. Hua Guofeng's strategy of forced-draft, centrally-controlled economic growth proved to be highly inflationary. The campaign against spiritual pollution during the winter of 1983–84 did address the widely-perceived problem that Deng's policy of intellectual liberalization and international interaction was introducing undesirable ideas and values into China, but the methods employed in the campaign, and the danger that it posed to less controversial economic reforms, produced considerable popular opposition.

Nor are there any plausible alternative candidates to replace Hu Yaobang and Zhao Ziyang. Given the degree to which Chinese politics has been civilianized and regularized over the last six years, it is highly unlikely that either man would be replaced by an active duty military officer, or by someone who is not already on the Politburo, the Party Secretariat, or the State Council. Although Deng has not been successful in removing from those bodies all those who are opposed to or skeptical of reform, he has been able to displace those who might pose a credible challenge to Hu and Zhao. All those who remain are either too old (such as Peng Zhen), too inexperienced (such as Chen Muhua), or too closely associated with the spiritual pollution campaign (such as Deng Liqun) to be considered attractive candidates for higher positions.

These positive achievements should not, however, be allowed to obscure some of the difficulties that Deng's succession arrangements still face. To begin with, it is important to emphasize the controversial nature of Deng's programs. Deng's reforms are every bit as radical, in the Chinese Communist context, as the "new-born things" of the Cultural Revolution, and have therefore aroused powerful opposition from both conservatives and moderate reformers.

At the center, Deng has been quite successful in removing the conservatives from positions of leadership. But a few remain on the Politburo, the Secretariat, and the State Council, along with a much larger group of high officials who are more interested in making marginal adjustments to the present system than in any fundamental structural reform. Some of these leaders—Li Xiannian, Chen Yun, and Peng Zhen—have Party seniority and standing that rival that of Deng himself.

What is more, as the campaign against spiritual pollution so clearly illustrated, both conservatives and proponents of moderate reform are even more prevalent at lower levels of the Chinese political system than at the very top. The current rectification campaign is aimed at generating enthusiasm for radical reform within the institutions that would normally benefit from the perpetuation of a Leninist system in China, particularly the Party, the army, and the planning and heavy industrial ministries. While the campaign is being implemented more strictly than was originally anticipated, it is too much to expect that it will completely eliminate all opposition to Deng's reform program.

Second, the specific arrangements Deng has devised for the succession remain controversial. He has reallocated power among major decision-making bodies—favoring the Secretariat over the Politburo—in ways that run sharply counter to Chinese Communist traditions. Hu Yaobang's personal style and his lack of experience in national policy matters have raised questions about his suitability to lead the Communist Party into the next decade. At a minimum, the legitimacy of both Hu and Zhao is still very much tied to Deng's personal authority. This raises the possibility that they, like the "Gang of Four" and Hua Guofeng before them, will prove unable to long survive the demise of their patron.

Finally, given the close connection between leadership and policy in China, the success of Deng's succession strategy will be intimately affected by the success of his economic and social reforms. As mentioned above, the reforms have been rather successful to date, and have attracted considerable popular support. But they remain vulnerable, particularly on the issues of economic stability, cultural integrity, and social equity. So far, only preliminary attempts have been made to restructure the urban economy, and there is always the possibility that the reforms announced at the Third Plenum in October 1984—notably price and labor reform—will produce inflation and unemployment. China's cultural integrity, an important value particularly for older generations of Chinese, remains threatened by the influx of new, unorthdox ideas from the West—particularly as the first wave of scholars trained abroad returns to China to take up new assignments.

But perhaps the most dangerous problem concerns the growing inequalities, both of income and status, that Deng's reforms are creating. While the urban-rural gap seems to be shrinking, the differences within the countryside have widened with the implementation of the household responsibility system, and urban income differentials are likely to increase as promised wage and labor reforms are undertaken. Thus far, these inequalities are not widely regarded as unjust, but rather as a legitimate way of linking reward to productivity. If economic and social disparities continue to widen, however, it is likely that disadvantaged groups will come to see them as unjustified, and that their views will find support at higher levels of the Chinese leadership.

Given this balance sheet, what are the prospects for a smooth succession? Despite the difficulties outlined above, a smooth transfer of power to the collective leadership headed by Hu Yaobang and Zhao Ziyang, and the successful consolidation of their power over the following years, is perhaps the most likely outcome. It will be facilitated if the reform package continues to achieve good results, if the rectification campaign is successful in strengthening their political base, and if they can maintain a working coalition, through compromise, with their less reform-minded colleagues on the Politburo. It will also be facilitated if Deng Xiaoping has a bit more time to preside over the further institutionalization of Chinese politics.

A pre-succession crisis, taking place before Deng's death, could occur in one of two general circumstances: if Deng, like Mao, were to lose faith in his succession arrangements and decided to change them; or if a challenge arose to the men and institutions he has chosen to succeed him that Deng could not turn back. Indeed, according to one plausible analysis, the spiritual pollution campaign represented precisely this kind of pre-succession crisis. Deng's reported reservations about the performance of Hu Yaobang in mid-1983 are said to have emboldened a group of more conservative leaders, particularly Deng Liqun and Hu Qiaomu, to utilize the campaign against spiritual pollution as a veiled attack against Hu's leadership.

If this is indeed what happened, however, the challenge to Hu Yaobang proved to be counterproductive. Although two reform-minded officials in the propanganda sphere (Hu Jiwei and Wang Ruoshui) did lose their positions, and another senior official responsible for cultural affairs (Zhou Yang) was criticized for his relatively liberal views on ideological questions, the campaign against spiritual pollution discredited its sponsors more than it weakened Hu Yaobang. It demonstrated the resistance of important sectors of society to their programs. And, equally important, it revealed that Deng was not sufficiently dissatisfied to tolerate a challenge to his overall reform program or to his succession arrangements. Deng's quick and resolute steps to defend Hu and stop the spiritual pollution campaign should serve to discourage comparable incidents in the future.

Nonetheless, another pre-succession crisis could conceivably occur if the reform policies experienced a clear and significant failure, or if new reforms were proposed that lost the support of a majority of the Politburo. An occasion for a confrontation between contending groups of leaders might be created by the emergence of vacancies on the Politburo, caused either by death or resignation. The purpose of such a crisis might not necessarily be to cause the dismissal of Hu Yaobang or Zhao Ziyang, but rather to force them to compromise their policies or to lose credibility, perhaps with an eye toward securing their eventual replacement at a later stage.

A mid-succession crisis, occurring at the time of Deng's death, is quite unlikely under present circumstances. A crisis of this sort, comparable to the arrest of the "Gang of Four" in October 1976, would take place only if Deng's authority were all that was holding the present arrangements together. Such is not the case. The succession arrangements created by Deng have a much broader base of support than did the unstable and divided collective leadership that existed at the time of Mao Zedong's death. Although there are divisions on the Politburo, they are far narrower than in the mid-1970s. What is more, the death of Deng will create fewer high level vacancies than did the deaths of Mao and Zhou, within a space of nine months, in 1976. Thus, one can anticipate that the present arrangements would survive the death of Deng.

But for how long? A final possibility is for a post-succession crisis, in which Hu or Zhao prove unable to consolidate their power. Of all the ways in which the succession to Deng might encounter difficulties, a post-succession crisis is the most likely. This judgment is based on the assumptions that the selection of Hu and Zhao remains controversial, for both personal and policy-related reasons, and that the removal of Deng's personal support would weaken their power. In particular, it assumes that the coalition that now exists on the Politburo is based, in part, on personal loyalty to Deng, and that Deng's death would free pivotal Politburo members, particularly those from the PLA, to "vote their consciences." In so doing, they might well join those who are skeptical of or opposed to reform.

A challenge to Hu and Zhao after Deng's death would occur under one of the same conditions as a pre-succession challenge: an arguable failure of policy, a mistake in political judgment by Hu or Zhao, or a reform proposal that proves unacceptable to members of the central collective leadership. Particularly important here would be the willingness of a surviving senior Party veteran—a Chen Yun, Peng Zhen, or Li Xiannian—to support, or even lead, such a challenge. Indeed, it is not implausible that one of these leaders might argue that, whatever the formal institutional arrangements, he should succeed to Deng's informal position as "paramount leader." If such a claim succeeded, that senior cadre might well believe it justified to replace Deng's lieutenants with men from his own camp.

Even if difficulties should emerge after the succession, however, the consequences are likely to be much less sweeping than those which occurred after the death of Mao Zedong. The political spectrum in China today is substantially narrower than it was ten years ago, the center of gravity of Chinese politics has been shifted several steps to the right, and the decision-making process is much more institutionalized. It is conceivable that, in the aftermath of a post-succession crisis, some reforms would be abandoned altogether, others would be modified or adjusted, and still others would be implemented more gradually and more partially than would otherwise have been the the case. Perhaps there would be a change in the degree to which China is willing to open itself to the West, or to cooperate with the United States. These developments might have considerable impact on particular groups inside China, and on certain types of foreign interaction with China. Nonetheless, they would represent a return to a more traditional Leninist economic and political order, rather than a revival of radical Maoism.

In brief, then, the chances for a smooth succession to Deng Xiaoping are far greater than they were when Mao served as China's paramount leader. A smooth succession is, in fact, the most likely—although not the only conceivable—scenario for China's future. This reflects Deng's steadiness of vision: his commitment to the successors he has chosen, to the institutionalization of Chinese politics, and to the rejuvenation of the Party and state bureaucracies. All this increases the chances that not only this succession, but also those that follow, will fall into the pattern of routine change that characterizes more mature Communist systems. Deng's lasting contribution to Chinese history may be to have promoted the evolution of his country from a young and volatile Communist system to a more stable and institutional regime.

POSTSCRIPT

In September 1985, the Chinese Communist Party convened a National Conference of Party Delegates—in effect an interim Party Congress—charged with reorganizing the central organs of the Party. The conference provided a convenient occasion for a further assessment of Deng Xiaoping's succession strategy.

SUCCESSORS

Despite rumors that they might step aside at the National Conference, Hu Yaobang and Zhao Ziyang retained their positions as Party General Secretary and Prime Minister, and thus continued for the time being as Deng's heirs apparent. But given their age (Hu was 70; Zhao, 67), and the new limits on tenure in office, it appeared highly likely that both would retire when their present terms expire: Hu at the 13th Party Congress in 1987, and Zhao at the 7th National People's Congress the following year.

The National Conference offered further evidence that Deng Xiaoping was already grooming another group of younger leaders to replace Hu and Zhao. All four men who had been frequently mentioned in this context were raised to Politburo membership just after the National Conference: vice-premiers Li Peng (aged 57 in 1985) and Tian Jiyun (56), who are plausible candidates to replace Zhao as premier; as well as Hu Qili (56) and Qiao Shi (60), both members of the Secretariat, who are likely prospects to succeed Hu Yaobang as general secretary of the Party. At the same time, no younger leaders associated with other major opinion groups in the Party gained promotion to the leading Party organs.

Nonetheless, Deng Xiaoping was still unable to find a suitable successor to his one important formal position: the chairmanship of the Party's Military Affairs Committee. This suggested that the PLA remained reluctant to see the post given to Hu Yaobang, and that the issue will be unresolved until the 13th Party Congress in 1987.

RESHUFFLING

The National Conference continued the restaffing of the central Party organs that had been under way since 1980. Although it is difficult to determine precisely the political orientation of each member of the new leading organs of the Party, the changes effected at the Conference did appear to alter the balance of power significantly in favor of reform.

Ten members of the Politburo and three members of the Secretariat, most of whom were in their late 70s and 80s, retired from their posts at the National Conference. Significantly, none of the Politburo or Secretariat members who had expressed reservations about various aspects of reform over the previous several years—notably Chen Yun, Yao Yilin, Hu Qiaomu, or Deng Liqun—was removed or demoted at the Conference. Even so, the differences over the extent and pace of reform still did not seem to have degenerated into the deep and unreconcilable cleavages that characterized Chinese elite politics on the eve of Mao's death. Moreover, the five new appointments to the Politburo, and the three additions to the

Secretariat, were almost all men closely associated with the recent reforms.[24] As a result, if the radical reformers entered the National Conference with a plurality on the Politburo and a majority on the Secretariat, they emerged with a majority on the Politburo and near dominance of the Secretariat.

Sixty-four members of the Central Committee, or 19%, resigned on the eve of the National Conference, thereby completing the extensive readjustment of the Central Committee that began at the 11th Party Congress in 1977 and continued at the 12th Congress in 1982. Predictably, most of their replacements were drawn from among the younger, college-educated officials who had been appointed to high posts in the central and provincial Party and state apparatus after 1982. A new round of ministerial, provincial, and military appointments also occurred in the middle of 1985. In all three areas, the average age of key officials fell to the middle or upper 50s, and the proportion with a college education rose substantially.

INSTITUTIONALIZATION

The Conference marked the further recivilianization of Chinese politics, ending the high levels of military involvement that resulted from the Cultural Revolution. Five of the eight PLA representatives elected to the Politburo at the 12th Party Congress resigned at the 1985 Party Conference, bringing the level of military representation on that body to its lowest point in the history of the People's Republic. PLA membership on the Central Committe fell to around 13%, also the smallest since 1949.

In addition, the Conference embodied Deng's efforts to restore normalcy and stability to Chinese elite politics. As a tangible indication of the current emphasis on collective leadership, no fewer than five members of the Politburo addressed the meeting. Those leaving the leading organs of the Party did so through resignation, rather than purge or dismissal. The discussion of the guidelines for the Seventh Five-Year Plan emphasized the extent to which they had been drawn up after extensive consulations with specialists outside the Party.

CONCLUSION

On balance, the National Conference lowered the probability of a pre-succession crisis by securing the smooth retirement of most of the oldest members of the Politburo, by suggesting an orderly rotation of the leaders Deng is grooming to succeed him, and, perhaps most important, by illustrating Deng's ability to win renewed commitment to reform despite the serious economic difficulties of the previous months. At the same time, the likelihood of a post-succession crisis was also reduced by the declining prospect that any other senior Party leader will be left to assume Deng's role as a vigorous elder statesman, and the lack of any clear alternatives to Deng's candidates for leading positions in the Party and state appartus. The prospects for the succession are not yet certain, but the National Conference did increase the chances for both political stability and policy continuity.

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[24] Retiring from the Politburo were Ye Jianying, Wei Guoqing, Wang Zhen, Ulanhu, Deng Yingchao, Li Desheng, Song Renqiong, Zhang Tingfa, Nie Rongzhen, and Xu Xiangqian. They were replaced by Li Peng, Tian Jiyun, Hu Qili, Qiao Shi, and Foreign Minister Wu Xueqian. Gu Mu, Yao Yilin, and Xi Zhongxun resigned from the Secretariat, and were replaced by Tian Jiyun, Li Peng, and Wang Zhaoguo, general secretary of the Communist Youth League. Of the new appointments, only Yao Yilin appeared skeptical about radical economic reform.

COMPETING POLITICAL-ECONOMIC STRATEGIES

By Carol Lee Hamrin*

CONTENTS

	Page
Highlights	72
Conservatives and Mao's "Three Worlds Theory"	74
Reformers and Deng's "Lean to the West"	75
Division in the Reform Camp and the Case for Nonalignment	78
The 12th Congress Compromise	82
Observations	85
Notes	88

HIGHLIGHTS [1]

In the era of Deng Xiaoping, remarkable changes have opened up the Chinese economy, diversified the culture and stabilized the polity. This decade since Mao's death has also been a time of intellectual ferment, accompanied by policy disputes and shifts in the balance of power among groups at the top that testify to much continuity in the political system.

In addressing the challenge of "revitalizing" China, the leadership has found some ideas useful from the past or from abroad but has been frustrated in efforts to adopt or construct a strategy fully effective in the current situation. In the course of much experimentation, there have emerged three distinctive sets of solutions that overlap in some areas, but are largely mutually exclusive. Each program has roots in the Mao era and each has its own coherent rationale.

In late 1976–1977, under the leadership of Hua Guofeng, Ye Jianying and Li Xiannian, a conservative program predominated that was premised on limited modification of the economic, social, personnel and foreign policies associated with Mao Zedong and Zhou Enlai in the mid-1970s. The shape of Deng Xiaoping's alternative radical reform strategy for China was first revealed during 1978–1980, when Deng promoted bold younger reformers under the leadership of Hu Yaobang and Zhao Ziyang and sponsored experimental policies that pointed to fundamental departures from China's past set of values, economic and social structure and international orientation. Briefly in 1979 and again with more persistence and success in 1980–81, a more moderate reform prescription emerged, linked to veterans like Chen Yun and Peng Zhen who at first were allied with Deng against the conservatives, but later balked at the pace and extent of change underway. These leaders stressed that the policies of the 8th Party Congress of 1956 and the post-Great

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Leap Forward reconstruction provided the appropriate marginal and remedial "fix" China required. They were unwilling to grant Deng and his successors an open mandate to depart farther from China's Marxist-Leninist heritage.

These three labels may strike some as peculiar. But although neo-Maoists may not at first glance seem "conservative," in fact their emphasis on law and order reflects a desire for minimal *systemic* change, although they were willing to entertain marginal changes in theory and policy. Those reformers who want to scrap the egalitarian economic and political system set up under Mao but only in order to return to the elitist Party-dominated "establishment" that prevailed prior to the Cultural Revolution are "moderate" both in their limited vision and in their aversion to radical *means*, whether of the left or of the right. They are the true believers in "economics first," viewing political and social reformism as disruptive. Deng and his protegees, ironically, are closer to Mao in putting "politics first," believing that major changes in the superstructure are a prerequisite for developing the economic base.

The identification of competing strategies has its limits when it comes to explaining the inner workings of the Chinese policy process, due to the incomplete and indirect quality of the information available. Thus, even as a heuristic device, this conceptualization should be viewed as dynamic, rather than static. Continual and sometimes rapid change was evident in individual and group positions on specific policy issues within a general shift between 1977 to 1984 away from the "left" end of the political spectrum. Thus, for example, Li Xiannian once was close to the neo-Maoism of Hua but now seems comfortable with moderate reform. Events may also bring change. Thus, it is impossible to judge exactly how much of Deng's periodic "law and order" rhetoric, such as in response to Bai Hua's writings, has resulted from pressure by his peers and how much from the limits of Deng's own sense of orthodoxy. Both are likely at work.

Compared to the Maoist period of debilitating infighting, current disagreement over strategy is handled by more civil and genuine concensus-building procedures.[2] There is a trend toward more frequent and regular policy sessions, with an enlarged participation, whereby the leadership works out marginal policy adjustments so as to avoid either policy stalemate or wild pendulum swings between extreme policies. No doubt the bitter memories of earlier factional struggles and the absence of a supreme arbiter like Mao, whose intervention could decisively set policy, both have served the cause of preventing polarization. Efforts by the new regime to rebuild a network of professional organizations and "think tanks," which inject expertise into the policy process, has also led to a healthy tinkering with policy to prevent problems of crisis proportion. Perhaps equally important in fostering stability rather than crises in the leadership has been a diminishing sense of vulnerability to external threat, as the Asian region has become relatively stable and peaceful and China's external ties have grown.

Deng Xiaoping's personal stature and abilities have been essential to the growing stability of the process, however; the marginal improvements in the system itself would suggest caution in projecting the same trend once he is gone. The mechanisms for a reemergence of the fast-paced, high-stakes politics of 1976 remain in place. Even if the succession were relatively smooth, so long as the proponents of strategies that are competitive with Deng's program hold high level positions, they could challenge or even veto his successors. This serves to underscore the importance of understanding the alternative prescriptions for China's future that have emerged in recent years.

CONSERVATIVES AND MAO'S "THREE WORLDS THEORY"

From late 1976 through mid-1978, Party Chairman and Premier Hua Guofeng was frantically wrapping himself in the mantle of Mao Zedong, fostering a personality cult and even adopting Mao's hair style. Feeling insecure for understandable reasons, having purged Mao's widow and vaulted over the heads of his elders to take an unprecedented array of titles, Hua stressed continuity with the immediate past. His assumption of power was based on his selection by Mao and the backing of key figures in Mao's security apparatus, like Wang Dongxing. In the name of "unity and stability," Hua was supported by elders who had been close to Zhou Enlai—Ye Jianying and other traditionalist military leaders and Li Xiannian and other Party bureaucrats.

Hua's effort to salvage Mao's ideology as the standard for setting policy was epitomized in the (now infamous) *People's Daily* editorial of February 7, 1977, which called for adherence to "two whatevers"—whatever Mao had decided and instructed. But the new regime clearly distanced itself from the unpopular mass politics of Mao, which were attributed to the "gang of four," and refurbished Mao's more moderate policies. The focus was turned to development with calls for mechanization of agriculture and modernization of industry, accompanied by massive publicity for the model agricultural collective Dazhai and the pioneer oil field Daqing. China's previous isolationism was modified gradually and selectively, on the premise of "self-reliance," to allow imports of whole plants and turn-key technology and exports of natural resources. These trends culminated in the ambitious ten-year plan, which promised a piece of a rapidly growing pie for everyone, presented by Hua in his work report to the 5th National People's Congress in February 1978.[3]

Despite these modifications, Mao's emphasis on ideological purity, collective incentives and moral exhortation, was retained. The political campaign to purge followers of the "gang" was severe but limited in scope so as to encourage the remaining radicals to close ranks behind the new leadership. In his report to the 11th Party Congress in August 1977, Hua praised the Cultural Revolution and even argued that a series of them could prove necessary to preserve the revolution.[4]

Foreign policy was shaped to allow single-minded pursuit of rapid development goals. Leadership pronouncements based on Mao's 1956 speech, "On the Ten Great Relationships," pointed to a relatively nonthreatening international environment in order to justify limits on defense spending.[5] Strong pressures from military modernizers emerged, however. The discussion of Mao's speech elicited complaints from military technology and industry sectors.

In media articles in January 1977, key organs appeared to be arguing that the international situation was in fact quite dangerous and required immediate redress of Chinese weakness by developing defense industries "somewhat faster" than the civilian sector, counting on this to provide stimulus to the rest of the economy.[6] The unspoken implication of such articles was that China should move to improve relations with the West, both for protection against the USSR and to gain access to Western military equipment and technology.

Ye Jianying played a key role in forging a patchwork compromise among competing interests. On Army Day in August 1977, just prior to the 11th Congress, speeches by Ye and articles by others in the old guard laid out a long-term view promising eventual transformation of China's military equipment, techniques and tactics (although not of the traditional people's war strategy). But, they admonished, in the short term the way to "speed up" military modernization was to "speed up" economic development, thus making it clear that the civilian and defense sectors would move forward at the same pace.[7]

A similarly uneasy and fragile compromise was forged in foreign policy. After some months of deliberation, the Chinese rebuffed Soviet overtures that had followed Mao's death and also highlighted their willingness to compromise with the U.S. over Taiwan in the months leading into the visit to Beijing by Secretary Vance. Nevertheless, steps were taken to ensure correct, if cool, relations with both powers to keep tensions low. A Sino-Soviet border river navigation commission convened in July after a two-year hiatus and worked out a technical solution to a shipping problem. Secretary Vance was hosted in Beijing in August and a new ambassador was sent to Moscow shortly thereafter, following a break of 18 months.

A major theoretical article affirming Mao's "three worlds" theory, published on November 1, 1977, by the *People's Daily* editorial department, spelled out the compromise. It criticized "closed-doorism" and stressed the necessity of uniting with all forces (implicitly including the U.S. against the USSR). Yet it depicted the U.S. as a "temporary, vacillating, unstable, unreliable and conditional" ally at best, and a potential "threat" to China due to its military "occupation" of Taiwan. The article warned against the dangers of negotiating with either superpower and stressed China's basic alignment with more "progressive" forces. These themes shaped Hua's report to the Congress in 1978 and have been reflected in statements by Li Xiannian and others through the years since then.

REFORMERS AND DENG'S "LEAN TO THE WEST"

Competition between conservative leaders and Deng Xiaoping's supporters, involving disagreement over the pace and scope of change, was evident from the beginning. Immediately upon his return to power at the July 1977 Party plenum, Deng began to question the rationale for maintaining the status quo and to build both civilian and military constituencies behind a program of major reforms in China's political and economic system. He argued that rapid economic construction would be impossible without eliminating discrimination against intellectuals and specialists, introducing a major role for the market and attracting foreign input into the economy and allowing greater political and cultural pluralism under reform party leadership. He created a sense of urgency by pointing to unrelenting Soviet expansionism on China's periphery and to China's chronic economic stagnation and military weakness under the status quo. Specific policy views based on this strategy were put forth in a major address by Deng to a National Science Conference in March 1978 and in a speech to the State Council in July by Hu Qiaomu, President of the Academy of Social Sciences.[8]

Deng Xiaoping's program held clear attractions for intellectuals, and the science and education and economic bureaucracies. There was strong support, too, from those like Deng himself who stood to gain allies from a reversal of verdicts on the Cultural Revolution and the return of its victims. Deng also had important sources of support among those military modernizers who had been quarreling with the traditionalists. A March 1978 media article by the General Staff, which no doubt reflected the views of its Chief—Deng, pulled no punches in calling for rapid military modernization, improved weaponry in particular, and argued for "putting all work on the footing of a surprise attack and a big, early nuclear war."[9]

Deng's views on the international situation were complementary to his calls for urgent reform at home. He was foremost among China leaders after 1977, as he had been in 1975, in pointing out the intrinsic and global character of Soviet expansionism. He called for maintaining a hardline approach in relations with Moscow and for accelerating cooperation with the West against the Soviet threat. He clearly relished the opportunity provided by U.S. National Security Advisor Brzezinski's visit to China in May 1978 for baiting the "polar bear" and characterizing Vietnam as the "Cuba of the East." All of Deng's comments on international affairs reflected a conviction that efforts to accommodate Moscow would only invite its aggression and alarm potential friends in the West.

Deng's handling of the confrontation with Vietnam in 1978–79 reflected his policy priorities. The conservatives took a rather passive diplomatic and military approach to the problem, calling for a buildup of defenses along China's southern border. Such an approach threatened to slowly drain economic resources, have little effect on Vietnamese policy and reaffirm outmoded "people's defense" strategy. Deng took a more activist tack, apparently gambling that a short thrust into Vietnam would upset the "hegemonists'" strategy and mobilize international support against them, thus strengthening China's security in the short-term so that it could continue focusing its resources on development. When the army in fact made a rather poor showing, Deng was able to turn the embarrassment into evidence of the urgent need to revamp the military.[10]

From Deng's overall viewpoint, domestic reform and close strategic and economic cooperation with the U.S. and its allies were necessary, possible and mutually reinforcing. Moreover, he argued to skeptics, greater U.S. interest in China should logically weaken

U.S. ties with Taiwan. At the same time, offers of peaceful reunification might prove attractive to Taipei as China's domestic situation improved through reforms.

To justify a major break with the Maoist past on all fronts, Deng pressed for a realistic critique of Mao's leadership and the adoption of a less dogmatic, more pragmatic approach to resolving China's problems. His efforts to expand the scope of policy options were embodied in the media campaign urging the use of "practice as the sole criterion of truth," which Deng personally endorsed at a conference on army political work in June 1978. His address implicitly contradicted comments to the same group by both Hua Guofeng and Ye Jianying reiterating Maoist dogma.[11]

By the end of 1978, the lines of conflict between Hua's conservatives and Deng's reformers had been drawn, and the month-long work conference preceding the mid-December 3rd plenum was the forum for achieving a new consensus that reflected important gains for Deng. It is likely that frank discussion of the limits on development posed by China's stagnant agricultural sector led to the decision of the plenum to revive the rural market. The proliferation of wall posters criticizing several Hua allies helped Deng's cause by giving evidence of the depth of opposition to Maoist policies. The growing tension with Vietnam and the Soviet-Vietnamese defense cooperation treaty signed in November, as well as American eagerness to normalize relations, seemed to support Deng's foreign policy prescriptions.

Deng emerged from the plenum as China's dominant political figure, overseeing the whole of the policy spectrum. The promotion to the Politburo of several political figures who had been close to Zhou Enlai—his widow Deng Yingchao, Chen Yun and Wang Zhen—no doubt helped forge a new consensus more favorable to Deng. The plenum restored the judgment of the 8th Party Congress in 1956 that class struggle was basically a thing of the past and that the needs of economic construction had highest priority. The appointment of Deng's protegee, Hu Yaobang, as Party secretary-general took a step toward restoring the 8th Congress structure Deng once headed. Hu's promotion, and the rehabilitation of key 8th Congress leaders like Peng Zhen and the late Peng Dehuai, along with their associates, would prove essential for further strengthening Deng's position thereafter.

By 1980, Deng's reform program had strong momentum. At the 5th plenum in February, key members of Hua's "whatever faction" lost their Politburo seats; former President Liu Shaoqi was exonerated; and a new Party constitution and discipline code were drafted. The Secretariat was reestablished and under Hu Yaobang's leadership quickly moved to consider a wide variety of recommendations for further reform of the system. In this atmosphere, there was an explosion of free thinking in theoretical and cultural circles, including questioning of basic Marxist-Leninist precepts and of the strengths and weaknesses of various types of social systems. In foreign affairs, budding Sino-American strategic cooperation in the wake of the Soviet invasion of Afghanistan was both a source and a reflection of Deng's strength. Visits by American and Chinese defense chiefs were exchanged in January and June.

In the Fall, at a series of high-level meetings, Deng and his group criticized Hua Guofeng's leadership, replaced him with Zhao Ziyang as Premier and opened public trials of associates of Lin Biao and the "gang." At the Congress session in September, there was a surprisingly democratic airing of views in group sessions. In the wake of public criticism of "leftist" management practices by members of the "petroleum faction" (planners associated with the Daqing model), several conservative Vice Premiers, including Li Xiannian and Daqing's founder Yu Qiuli, were removed from the State Council as part of a face-saving move into "retirement" along with Deng and Chen Yun. In the course of this reformist drive, Deng proposed plans for even more comprehensive restructuring and restaffing the leading organs. By late in the year, Deng appeared poised for major victories at the 6th plenum, expected at the turn of the year, and a consolidation of power at the 12th Congress, which was scheduled to convene "early," that is, in 1981 rather than 1982.[12]

DIVISION IN THE REFORM CAMP AND THE CASE FOR NONALIGNMENT

Less than three months after the victory over the conservatives at the 3rd plenum, in the spring of 1979 there emerged signs of disagreement within the reform camp. Deng's momentum came to a temporary halt through the summer and a number of themes counter to his program appeared. The conflict developed at a high-level meeting on ideological work and a work conference called to reexamine priorities, apparently due to concern over regional tensions in the wake of China's attack on Vietnam and social unrest in several cities that could be linked with dissident activities. Although a number of prominent theorists close to Deng and Hu Yaobang gave speeches strongly critical of Mao's era and called for radical political as well as economic reform, more moderate views prevailed.[13]

The leadership decided to scrap the ten-year plan, dampen political rivalry, delay discussion of sensitive historical questions, curtail the Democracy Movement and lower tensions with Moscow and Hanoi. Media articles in late March and early April, in explaining the rationale for these changes in policy, highlighted the need to redress serious imbalances in the economy, requiring complementary efforts to achieve domestic "stability and unity" and a "peaceful and stable international environment." It appeared that the voice of the economists had prevailed. A prestigious Finance and Economic Commission headed by Chen Yun and Li Xiannian was set up to spearhead readjustment.

Certainly, the conservative bureaucrats like Li had a hand in this move, which put restraints on Deng's initiatives. But there was indirect evidence that Chen Yun, who had been put in charge of the economy at the 3rd plenum, was the major actor in effecting the changes, which reflected his own distinct set of priorities. A new three year plan to "readjust, reform, consolidate and improve" the economy, with its stress on the need to shift resources away from heavy industry, echoed Chen Yun's well-known views on development and harked back to the reconstruction effort he led after the Great Leap forward.

Moreover, Chen's typical aversion to any interruption of steady, balanced economic development seemed to be reflected in a new approach to military matters. A March 26 *People's Daily* editorial warned that China could not expect its borders to be tranquil in the future but yet only by achieving stability and modernization could China truly insure against reckless action by hegemonists. This pessimism, which implied that China had gained little security from its confrontation with Vietnam, gives some credence to an intelligence assessment from Taipei, reported by AFP, that credited Chen Yun with a scathing indictment of the border war. He allegedly contended that "We didn't break their fingers, but merely hurt them. In some respects, we actually helped Vietnam." Chen allegedly stressed that Chinese troops were withdrawn primarily for economic reasons, not because military objectives had been achieved. Statements by Deng and Li did not reflect this jaundice and yet some such assessment of the outcome must have been behind the Liberation Army Daily's defensive March 26 editorial claiming that the attack was a "just war" and that "it would not do if we had not fought it."[14]

The economic readjustment program that emerged in the wake of the policy reassessment was only one part of an alternative program. Tighter social and cultural controls were implemented under a renewed requirement (based on anti-rightist slogans of 1957) to "uphold" Party leadership, Marxism-Leninism-Mao Zedong thought, socialism and the dictatorship of the proletariat. The "four upholds" reflected a broad concern for resurrecting orthodox theory, not just the narrow adherence to Maoism stressed by the conservatives. It also appeared to be a corrective to Deng's unconditional calls for "emancipating the mind," despite efforts to portray the two slogans as consistent.

An alternative to Deng's international strategy was also indirectly suggested in 1979, in media articles that discussed the lessons to be learned from Lenin's New Economic Policy (NEP), which both relaxed restrictions on capitalist practices at home and made amends with enemies abroad.[15] By analogy, the articles seemed to suggest that such an approach in China now would buy time for building at a slower but steadier pace. A new emphasis on pursuing "Chinese-style" modernization reflected a recognition that China could not "import" development.

As China initiated talks with both Moscow and Hanoi in 1979, a number of officials were rehabilitated who had been Soviet educated, had maintained ties with Soviet colleagues in the 1950s and 1960s and then had been criticized in the Cultural Revolution for opposing the Sino-Soviet split. These included the late Wang Jiaxiang, who as head of the Party's International Liaison Department had proposed improving relations with both Soviet and American camps as well as China's neighbors; the late Zhang Wentian, General Secretary of the Party in the 1930s and joint critic with Marshall Peng Dehuai of Mao's Great Leap Forward; and Yang Xianzhen, former head of the Party school system.[16]

These rehabilitations were no doubt approved by Deng Xiaoping as part of his larger program. But the failure of the leadership either to disvow or praise the foreign policy views of these officials probably reflected current indecision regarding China's international stance. Certainly, the timing of these three rehabilitations—at the opening of talks with Moscow in April; during Vice President Mondale's visit in August; and on the eve of Soviet National Day in November, suggested that at least some leaders wanted to signal sincerity to Moscow.

It is difficult to judge whether Chen Yun has directly backed an easing of tensions with Moscow since his publicized views have dealt solely with domestic matters and he rarely meets with foreigners. Given this reclusiveness, however, the fact that in 1984 Chen met with Soviet Deputy Prime Minister Arkhipov, who headed the Soviet planners working with Chen on China's first five year plan, is quite suggestive of his inclinations. There is also earlier circumstantial evidence linking Chen with proponents of a neutral, moderate foreign policy.[17] Given the connection in practice between the domestic and foreign policy thrusts that emerged first in 1979 and again in 1981, at the very least it appears that Chen Yun's development strategy has provided an umbrella for lower-ranking strategic experts as they have pressed a nonaligned alternative to Deng's pro-Western foreign policy.

That Deng Xiaoping was not wholeheartedly in favor of the policy trends of early 1979 was evident in his late March speech to the meeting on ideology.[18] He appeared to minimize the extent of the economic retrenchment both in scale and in length of time. He distanced himself from the "four upholds" by characterizing the proposal as an initiative of the Central Committee rather than one of his own, and went to some lengths to stress that it was compatible with the "fundamental" principles of "emancipating the mind." In foreign policy, Deng gave even less ground. Even though his speech was given just days before Beijing offered to open unconditional talks with Moscow on normalization, he provided no rationale for such an approach. Instead, he praised China's earlier strategy of building a united front against hegemonism and normalizing relations with Japan and the U.S. He credited this with "smashing the wildly arrogant plan of Soviet hegemony to try to isolate us internationally" and creating a "very good" international environment.

Although Deng's strong reform drive silenced his critics temporarily after the summer of 1979, tensions again were building from mid-1980 through 1981. This was evidenced by a proliferation of allegorical articles in the media that appeared to be discussing current issues by means of the lessons to be learned from history. They ranged across the whole spectrum of policy issues on the platter, including Ming and Qing successions involving both Prime Ministers and Emperors and power struggles between nineteenth century "die-hards" and "reformers," the economic cost of foreign wars and the need to maintain independence in foreign economic relations.

A turning point came at a work conference in December 1980, but was foreshadowed in a *People's Daily* editorial on December 2 that warned of the emergency of "hidden dangers" in the economy, including a poor grain harvest and alarming budget deficits, and extended indefinitely the readjustment period due to end in early 1982. Chen Yun again apparently played a major role in shaping a new set of compromises around the premise that an urgent economic retrenchment took precedence over all else. In Deng's speech of December 25, summing up the work conference, he referred to Chen's (unpublished) review of the lessons to be learned from 31 years of PRC economic history and he credited Chen with most of the major suggestions for redirection.[19] It was decided to postpone further enterprise reforms, reversing a decision in September to "accelerate" the pace. Negotiations for a large number of foreign trade contracts were put on ice.

This discussion of development priorities apparently was broad enough to include a wide array of closely related policies, judging from evidence in the media through 1981. The review may have been spurred on by events in Poland, which tended to underscore the potential dangers of reform and economic dependence on the West, and by the Dutch sale of submarines to Taiwan and American Presidential campaign rhetoric, both of which seemed to foreshadow an improvement in Taiwan's international situation. At the same time, Moscow's persistent calls for a resumption of talks and evidence that the Brezhnev succesion was underway probably encouraged reconsideration of Sino-Soviet relations.

Although Deng endorsed Chen Yun's call for economic retrenchment, the overall policy review, which extended through most of 1981, constituted a serious challenge to Deng's program and eventually led to major modifications by mid-1982. Allegorical media articles again revived the analogy of Lenin's NEP for China's current situation. A reassertion of the plan over the market, tighter social controls and a revival of ideological orthodoxy were linked with concern that an economic slowdown would clash with rising expectations in the populace, producing social unrest. Thus, the New Year's editorial of 1981 warned of a "crisis of confidence" among the people and reemphasized the importance of the "four upholds," especially the leading role of the Party on all fronts. The building of a "socialist spiritual civilization" was to center on self-sacrificing communist morality.

There were warnings against efforts to "cast off" Party control, for example in trade unions.[20] This seemed to reflect concern over Polish events at the time and countered the trend since Deng's call in late 1978 for trade unions to genuinely reflect the interests of workers and to take the lead in setting up organs in basic units that would allow workers and staff to have a say in major as well as minor issues. Deng's general backing for more democratic management of basic units, involving the separation of party committees from daily administration, had been the most radical part of his 1980 reform proposals. The fact that the official version of his August 1980 speech omits a lengthy passage on this issue, thus watering down his proposals considerably, indicates his failure to gain support for moves in this direction even by 1983.[21]

Countercurrents in foreign policy appeared through 1981. In February, another article was published in honor of Wang Jiaxiang, written by several officials with considerable influence in military and foreign affairs. The article quoted Wang's argument that:

> It is better to adopt a moderate policy in foreign affairs in order to work against time to tide over difficulties and quicken accomplishment of our country's socialist construction . . . During the struggle against imperialism, revisionism and reac-

tion, we should pay attention to strategy and tactics, guard against diverting a local war to our country and avoid being taken as the main target of attack . . . [22]

It seemed that some leaders were concerned that close Sino-U.S. ties would exacerbate Moscow's hostility. Other media references defending Lenin's signing of the Treaty of Brest-Litovsk with the enemy in 1918 suggested that the Chinese leadership may have been debating specifically whether to reopen the Sino-Soviet normalization talks, after a year's "postponement." [23]

Other historical articles throughout 1981 clearly revealed concern that China might be writing off hopes of regaining Taiwan in order to improve strategic and economic relations with the U.S. One article in *People's Daily* on January 8, for example, insisted that "we should . . . learn from" a proposal of Zhou Enlai's in 1927 to repudiate the alliance between the Communists and the Nationalists and attack Chiang K'ai-shek, to prevent his political power . . . "becoming more consolidated and his relationship with the imperialist powers gradually growing closer." The article even seemed to argue by analogy that any consequent loss of U.S. economic aid was of minimal importance. *People's Daily* indirectly underscored the importance of the 1981 debate when it insisted that the earlier debate was "not a manifestation of the controversy over policy, but was in fact a struggle between two different strategic ideologies . . . related to finding a path for the revolution."

This and similar media articles were often linked with Zhou Enlai, adding to the circumstantial evidence that strategic experts who served under Zhou were a pressure group for change behind the scenes. For example, one in a series of articles in *People's Daily* that appeared in mid-July just after Secretary Haig's visit to Beijing underscored Zhou's willingness always to affirm Soviet assistance to China in the 1950's. This theme would reemerge in 1983 in a series of reminiscences by Wu Xiuquan, one of the experts most closely linked with Wang Jiaxiang. [24] In 1981, such themes complemented the warming trend in nonpolitical Sino-Soviet contacts. But by pointing toward an eventual end to Sino-Soviet enmity, they seemed to run counter to the Dengist theme advocating an international anti-Soviet united front, specifically to include the U.S. and its allies, which was in place through the end of the year but then disappeared.

THE 12TH CONGRESS COMPROMISE

The 1981 policy review revealed strains in the alliance of veterans formed in 1978. As Deng backed reform proposals that went beyond anything previously tried in China, exploring the uncharted territory of genuine institutional checks on Party power and complete reversal of collectivization, key Party elders balked. Both in early 1979 and again in late 1980, cooperation between Li Xiannian and Chen Yun, perhaps based on their earlier economic work together, was probably at work when the brakes were applied. Deng's strategy in forging a new consensus was apparently to realign his policies to reflect more conservative themes in exchange for gains on key power issues, including the thorough overhaul and rejuvenation of the bureaucracy—begun in early 1982 with government streamlining and continuing with the three year Party rectification campaign launched in late 1983—that is essential to strengthen the power base for the future caretakers of his program.

At the 6th plenum, convened belatedly in June 1981, Hu Yaobang gained the Party Chairmanship and Mao and Hua were criticized in the resolution on Party history, but in other aspects the plenum fell short of Deng's desires: the judgment that many of Mao's theoretical and policy prescriptions remained valid; the apparent unwillingness of the Army to accept Deng's replacement by Hu as its commander-in-chief; and the retention of Hua on the Politburo's standing committee.

After the 12th Congress in September 1982, Deng still did not resolve these issues to his complete satisfaction. The juggling of interests in appointments at that time was clear, as the central leadership divided up the senior posts among representatives of the three groups. Deng's major gain was the elimination of the Party chairmanship and the further demotion of Hua Guofeng, but he failed to eliminate the Politburo or the Party's Military Commission as policy-making bodies, as seemed to be his intent in 1980, or to retire the elders from the Standing committee. Even through the 2nd and 3rd plenums in 1983 and 1984, there was evident stalemate on power issues, as no appointments or retirements occurred at the highest levels despite steady gains by reformers at middle and lower levels.

As in appointments, the 12th Congress compromise on policy incorporated elements of all three programs. This was particularly evident in the economic strategy that emerged. Through the 1980s, the readjustment focus of Chen Yun was to be continued, along with "step-by-step" reform, while efforts would be stepped up to press forward on the key state projects in energy and communication so dear to the conservatives. This approach is intended to lead to high speed growth in the 1990s so as to achieve a quadrupling of national output by the year 2000. This high target was not merely a sop to conservatives or an enticement to keep the military on board. It was also an important means by which the Dengists hoped to keep up the pressure to implement reforms, without which they argued a "takeoff" would be impossible.

By the time of the 3rd plenum of 1984, with the help of good harvests and a stable economy, the "radicals" had managed to launch another reform drive, expanding rural reforms and initiating major changes in the industrial management, wage, tax and price arenas. They argued that there was an urgency to systemic reform on the grounds that the new "information revolution" in the West allowed China a brief but crucial "window of opportunity" to catch up. This reasoning clearly was intended to modify the 7th five year plan (1986–90) in favor of reform. Moderates were apparently on the defensive in insisting on balance and caution.

In cadre policy and doctrine, as well as economic policy, there was evidence of compromise at the 1982 congress. Deng's approach, with its rather consistent focus on purging or retiring "leftist" opponents of reform, was moderated by Chen's preference for educational efforts to reshape all Party members into selfless "models" for the citizenry. Maoist slogans favored by the conservatives such as "fear neither hardship nor death" were resurrected and "communist morality" became a central theme in new efforts to educate the populace in partriotism. Although the congress marked a breakthrough for the Dengists by calling for a three year rectification of the Party that began in late 1983, there was continuing ambiguity into 1984 regarding whether "leftists" or "rightist" tendencies were the main target and whether the effort was primarily educational or was to involve a serious purge.

The campaign to "eradicate spiritual pollution" in late 1983 clearly revealed Deng's difficulty in straddling the growing rift within his coalition.[25] In order to get rectification off the ground, Deng apparently gave in to pressures from Chen, Li, Peng Zhen and Wang Zhen to rein in "heterodox" thinking among younger reformers and "bourgeois" lifestyle among the youth. Ferocious infighting between the "moderates" such as Politburo member Hu Qiaomu and Propaganda Department Director Deng Liqun and the "radical reformers" such as cultural adviser Zhou Yang, and Hu Jiwei and Wang Ruoshui at the People's Daily opened up wounds throughout the propaganda apparatus. The conservative tilt even produced a startling "rehabilitation" of Mao Zedong on the 90th anniversary of his birth in December. All of this had again been reversed by late 1984, with calls for total repudiation of the Cultural Revolution and creative development of the concept of socialism. The Reform Decision adopted at the 3rd plenum mentioned the Thought of Mao Zedong not at all. In the face of this new reform blitz, skeptics and critics were lying low.

In foreign policy, the shift toward an "independent" stance by the time of the 12th congress also reflected the moderates' stark assessment of the limits on policy options posed by a weak economic base.[26] China's foreign relations came to be viewed through a different prism, as "economics first" took hold. Earlier single-minded efforts to forge close strategic ties with the West against Moscow gave way to a search for markets and sources of technology through expanded relations with all countries, East or West, North or South. Primary concern for regional stability gave new importance to close ties with Japan and moderation of hostility with both Moscow and even Hanoi.

The decision to adopt a lower strategic profile led to deliberate attempts to balance Sino-Soviet and Sino-U.S. relations. Thus, when the August 17 Communique with Washington was signed, Beijing's envoy was in Moscow discussing the resumption of normalization talks, which in turn convened just after Secretary Shultz's visit to Beijing early the next year; the Zhao-Reagan exchange in late 1983-early 1984 was similarly "balanced" by Vice Premier Wan Li's attendance at Andropov's funeral and plans for a visit by his counterpart, Arkhiphov, hosted by "old friends" Chen Yun, Li Xiannian and Bo Yibo.

Yet despite compromise to allow a more balanced posture in relation to the superpowers, there has been evidence of continuing competition between views. Deng Xiaoping's group has insisted that China's new stance is neither "equi-distant" nor permanent. Dengist media articles through this period presented an analysis to support such "flexibility": the Soviet Union was only temporarily "bogged down" by economic problems and problems in Afghanistan and Eastern Europe while its pursuit of global hegemony would not falter; the U.S. was trying to make a "comeback" but would likely fail to halt the steady erosion of its global influence. Thus, the Dengists tried to keep intact the rationale for a decade of Sino-U.S. detente—that China should align with the waning power against the rising power.[27]

Other strategists apparently differed. In mid-1983, a researcher in the Beijing Institute of International Strategic Studies, headed by Wu Xiuquan, presented a rationale for a permanent neutral strategic posture—that both superpowers were on the wane and China should align with the moderate forces of the Third World.[28] At the end of 1983, these disparate trends within Chinese foreign policy coexisted uneasily side by side. The year-end summaries of international events were positing a trend toward a prolonged "strategic stalemate" in the international balance of power, but this had not yet become the authoritative view. At the same time, Premier Zhao Ziyang was in the U.S., still speaking of Moscow's "southern strategy" for global hegemony and talking about the "inevitable" development of "enduring" friendship with the U.S., albeit for the sake of international "peace and stability" rather than for anti-Soviet purposes.[29] For a time it appeared that compromise had linked China's relations with both superpowers in such a way that they must either suffer stalemate together, as in early 1983, or move forward in concert, as they did briefly in early 1984.

But by the summer of 1984, the outlines of a new compromise more favorable to the Dengists was emerging. Premier Zhao and his top international advisor Huan Xiang affirmed the concept of strategic stalemate, but for the first time posited a trend toward global interdependence and peaceful cooperation rather than inevitable confrontation.[30] Implicitly, Huan rejected the Stalinist theory of an era of struggle to the death between imperialism and socialism, of which Mao's "Three Worlds Theory" was a variant. Although this left the door open for eventual detente with Moscow, the chief importance of the shift in doctrine was to justify permanent, not tactical involvement with Western economies and cooperation with the U.S. And in fact, by 1984, with the rebirth of the U.S.-China military relationship and the Soviet postponement of Arkhipov's visit, China was again leaning Westward. There was renewed stress on the threat posed to China by Moscow's deployments of SS-20s and its burgeoning Pacific naval force. And Deng Xiaoping was promising that China's "open door" policy and peaceful approach to Taiwan would not change into the 21st century.

OBSERVATIONS

Following are some conclusions that are suggested by developments since Mao's death:

(1) Fundamental questions as to the best system of governance for China, the elements of traditional and foreign cultures to be adopted, and the relationship of urban to rural China all continue to haunt Chinese politics without Mao. Different orientations taken by competing coalitions in addressing such issues have their roots in the Maoist period and echo cleavages that have appeared in other socialist countries.

From this perspective, it would appear that the conservatives have pruned the populism from Mao's views and kept their *Stalinist* core—a collectivized command economy focused on rapid heavy industrial development through "leaps" under the strong control of the Party bureaucracy. The radical reformers may be *Titoist* in their willingness to experiment with a decentralized economy, worker self-management, and a stronger role for government and law in recognition of non-Party individual and group rights and interests within a broad class alliance. They retain sympathy for the late Mao's anti-bureaucratic views, but have a strong antipathy for his populist, anti-organizational approach to remedying the problems of bureaucratism. The moderate reformers are *Leninists,* determined to return China to the 8th Congress norm against which Mao rebelled. They are willing to pursue "regressive" NEP decollectivization when necessary to revive the economy and consolidate support for the regime, but only on a temporary basis. Thus they do not view "individual responsibility systems" as a *permanent* feature of "Chinese-style socialism." Moreover, their willingness to allow nonsocialist elements to persist in the economy and society while a solid economic basis is steadily laid down is premised on maintaining the Party's total monopoly on power. Theirs is a rather deterministic, technocratic view that economic change precedes social change. Thus, they smell a whiff of Maoist voluntarism in radical reform measures, and they detect heterodoxy in the questioning of Marx and Lenin and exploration of capitalist management theory and techniques [31]

(2) The personalistic nature of Chinese politics underscores the fact that the removal through death of key remaining members of the revolutionary generation, primarily Deng, Chen Yun, and Li Xiannian, will have an important impact on the mix of policies pursued in the next decade. As with Mao and Zhou, the order of their deaths will significantly influence who from the next generation emerges at the top as well as the relative continuity of policy. The urgency behind the reform drive of late 1984–85 reflects a "window of opportunity" for stabilizing the reform program while Deng is still vigorous.

(3) There is an important generational aspect to the political conflict of recent years. Hu Yaobang and Zhao Ziyang, in challenging the dogmas of the past and calling for full emancipation of the mind, are appealing to a younger constituency with quite different experiences and aspirations than those shared by most of the revolutionary generation. Appeasing the elders while also wooing technocrats and youth is not easy, especially when it comes to issues touching on Chinese sovereignty and cultural identity or Party legitimacy, and affecting the material interests of millions. These are precisely the types of issues that will become particularly important in the succession to Deng.

(4) Civil-military relations remain a problem. Budget cuts for the PLA after 1979 left Deng Xiaoping without a "carrot" (promised improvements in equipment) to balance his "stick" (restriction of PLA influence in politics and culture and an overhaul of the command structure). The focus since the 12th Congress on investing resources in science and technology development, and the appointment of a new defense minister long involved in military R & D,

may help the reformers expand the base of support within the military for their approach to development and their foreign policy. The lack of rejuvenation in the high command clearly is the weakest link in Deng's succession arrangements.

(5) Doctrine remains an integral part of any program; it defines the rationale uniting the whole set of policies and is not merely window-dressing or *ex post facto* justification. To speak of political struggle in China between "ideaologues" and "pragmatists" and to believe that Deng Xiaoping posits practical solutions to concete problems without regard to theoretical concerns is to miss an essential explanatory factor in the Chinese political equation. Even political realism requires a theoretical rationale, as the publicity surrounding the publication of Deng's *Selected Works* in July 1983 and the continuing effort evident in the October 1984 Reform Decision to redefine Marxism and socialism testify. Radical reformers cannot afford to stick to pure iconoclasm. They need a positive, credible set of values and beliefs to counter the Maoist critique of revisionism lying close at hand for their detractors. Ideology also remains important in the Chinese political system because traditional culture places great value on the unifying and energizing force of moral values and because the pursuit of centralized single party rule in a country with a vast diversity of conflicting interests reinforces the need for exhortatory implements of rule.

(6) The economic situation nevertheless is increasingly critical in determining policy and power. The go-slow approach of the Chen Yun economist types may seem sensible but has always been unattractive to the politicians. Critics can claim that it represents stagnation rather than slow sure progress. Indeed, by late 1984, radical reformers had successfully argued that the impressive economic gains achieved through rural reforms could be duplicated in the urban sphere, and that the global information revolution threatened to leave China forever behind without more urgent reform measures to speed up growth. But systemic change in industry, commerce and finance, as charted by the October plenum, are extremely complex and ideologically repugnant; they also point to complementary expansion of political and social pluralism. The Soviet model under Brezhnev, an easier alternative congenial to the conservatives—and one that has served to make the USSR a superpower—could prove increasingly attractive in the post-Deng era, despite its obvious flaws.

In all, the complexity of the interactions between power and policy disputes, domestic and foreign calculations, and practical and theoretical matters means that the timing and combination of events is essential in effecting political change. Thus, prediction of Chinese political trends is extremely difficult. But the generic factors that count and the parameters of options facing the leadership can be identified. The emergence of competing strategies in the post-Mao period underscores both the large element of continuity in the political system and also the fact that what the U.S. and other outside actors do has an important, even if indirect, impact on Chinese politics.

NOTES

1. The views expressed are those of the author, not of any U.S. Government organization. For a more detailed version of this study, see "Competing 'Policy Packages' in Post-Mao China," Asian Survey XXIV:5 (May 1984), pp. 487-518. I appreciate the time and suggestions of those who reviewed earlier versions of my work: Doak Barnett, Timothy Cheek, Harry Harding, Kenneth Lieberthal, Dorothy Solinger and Robert Sutter.

2. In my view, the post-Mao period began with a factionalized struggle for power, subsiding gradually after 1978 into more regularized political competition between strategies or "tendencies" in which policy differences have been as important as power issues. For an excellent discussion of the analytical problems involved, see Harry Harding, "Competing Models of the Chinese Communist Political Process: Toward a Sorting and Evaluation," Issues and Studies XX:2 (February 1984), pp. 13-36.

3. Peking Review (PR) No. 10 (1978), pp. 7-40.

4. Xinhua, August 22, 1977.

5. For a discussion of Hua's handling of Mao's speech, see Stuart R. Schram, "Chairman Hua Edits Mao's Literary Heritage: 'On the 10 Great Relationships'," China Quarterly (CQ) 69 (March 1977), pp. 126-135. The text of Mao's speech is on pp. 221-238.

6. National Defense Science and Technology Commission (NDSTC), "Premier Zhou made Painstaking Efforts to Develop Advanced Technology for National Defense," Beijing domestic radio, Foreign Broadcast Information Service Daily Report: China (FBIS), January 21, 1977, p. E1 ff.; National Defense Industry Office (NDIO) theoretical group, "The Strategic Policy on Strengthening Defense Construction—on Studying Chairman Mao's Dissertation on the Relationship between Economic and Defense Construction," Guangming Ribao (Guangming Daily; GMRB), January 20, 1977, FBIS, January 31, 1977, p. E1 ff.

7. Ye Jianying's speeches at a rally, July 31, and a reception, August 1, in honor of the 50th anniversary of the PLA's founding, FBIS, August 1, 1977, pp. E4-12; Su Yu, "Great Victory for Chairman Mao's Guideline on War," Renmin Ribao (People's Daily; RMRB), August 6, 1977, FBIS, August 8, 1977, p. E10.

8. For the text of Deng Xiaoping's address to the science conference, see PR No. 12 (March 24, 1978), pp. 9-18. The revised version of Hu Qiaomu's speech appeared in RMRB, October 6, 1978, FBIS, October 11, 1978, p. E1 ff.

9. RMRB, March 7, 1978, FBIS, March 15, 1978, p. E6.

10. By recommending a limited military action, Deng may have played a decisive role in forging a consensus between military and civilian interests. This analysis of the differing views corresponds with the findings of a detailed study by Patrick J. Schena, "Informal Groups and the Formulation of Chinese Foreign Policy: The Third Plenum of the 11th CCP Central Committee and the Chinese Invasion of Vietnam—a Case in Point," unpublished paper for the Fletcher School of Law and Diplomacy, May 16, 1980.

11. The slogan emerged in Hu Fuming, "Practice is the Sole Criterion of Truth," GMRB, May 11, 1978. For a history of the behind-the-scenes struggle to publish the article, see Xinhua, March 20, 1979, FBIS, March 21, 1979, p. L16.

12. For Deng's major address proposing democratizing reforms, presented at an August 18 meeting of the Politburo, see his Selected Works (SW), p. 228 ff. The Communique of the 5th Plenum, RMRB, March 1, 1980, announced plans to convene the Congress early.

13. See Wang Ruoshui, "The Greatest Lesson of the Cultural Revolution is that the Personality Cult Should be Opposed," Hong Kong, Ming Pao Yuehkan No. 2, February 1, 1980, pp. 2-15, Joint Publications Research Service (JPRS) 75291, China Report: Political Sociological and Military Affairs; No. 66, March 12, 1980, pp. 78-100.

14. AFP wire dispatch from Taipei, August 3, 1979. Jiefang Junbao (Liberation Army Daily; JFJB), March 26, 1979, FBIS, April 5, 1979, p. E2.

15. See for example an article discussing the philosophical theories of an official once accused of pro-Soviet sentiment in Zhexue Yanjiu (Philosophical Research) No. 4 (April 1979), pp. 21-26.

16. See an article by Wang's widow, Gongren Ribao (Workers' Daily; GRRB), April 5, 1979, FBIS, May 4, 1979; Deng Xiaoping's eulogy for Zhang Wentian, which avoided any reference to his foreign policy views, FBIS, August 27, 1979, p. L2; Yang Xianzhen's speech attacking Kang Sheng, Hongqi (Red Flag; HQ) No. 7 (April 1, 1980), JPRS 75739 China Report: Red Flag (JPRS RF), May 21, 1980, p. 34 ff.

17. Red Guard documents during the Cultural Revolution linked Chen Yun's post-Leap economic reconstruction policies with the foreign policy proposals of Wang Jiaxiang. In the early 1970s, Zhou Enlai sponsored the return to influence of Chen Yun, Wang Jiaxiang and Zhang Wentian as part of his "kitchen cabinet." Chen presided over the memorial service for Zhang in 1979 and appointed Huang Kecheng (once Peng Dehuai's Chief of Staff) as his right-hand man in running the Discipline Inspection Commission. These developments all suggest that there have been long-lasting personal linkages among these men, the most noted critics of Mao's Great Leap Forward. See also note 22.

18. SW, p. 123 ff.

19. SW, p. 252 ff.

20. See "Strengthen Trade Union Work in a Big Way," RMRB and GRRB, January 15, 1981, FBIS, January 19, p. L12.

21. The Hong Kong press published a lengthier version of the reform program, as presented to the Central Party School in late 1980 by Liao Gailong, a reform theorist. Liao's speech contained a passage atttributed to Deng that does not appear in the version of his August 18 speech in S.W. See FBIS, March 16, 1981, p. U1 ff., for Liao's speech.

22. GRRB, February 4, 1981. The authors included military veterans Wang Zhen and Xiao Jingguang, (recently deceased) foreign policy advisor Liao Chengzhi, and communist bloc expert and military strategist Wu Xiuquan. Several of these officials worked with Wang Jiaxiang, Chen Yun and Peng Zhen in the reconstruction of Manchuria after 1945.

23. HQ No. 1 (January 1, 1981), JPRS 77587 (March 13, 1981) RF, p. 44 ff.

24. Wu was one of the authors of the February 1981 article on Wang Jiaxiang. His reminiscences were published in Shijie Zhishi (World Knowledge; SJZS) Nos. 16 and 17, 1983 and reprinted in Hong Kong, Wen Wei Po as a series running from late August into October, FBIS, August 26, 30, 31, September 1, 7, 8, October 19, W section, and continued in JPRS.

25. The Communique of the 2nd Plenum, in FBIS, October 13, 1983, p. K17, which launched the rectification campaign, made no mention of the campaign to "eradicate spiritual pollution" (defined primarily as rightist "bourgeois liberalism") that broke out shortly afterward, effectively shifting attention away from the leftists targeted for purging in the guidelines for the rectification.

26. For an analysis of the shift in foreign policy in 1982 that focuses on the international events that affected it, see my article, "China Reassesses the Superpowers," Pacific Affairs 56:2 (Summer 1983), pp. 209–231.

27. An early example of this type of defensiveness was then Vice Foreign Minister (now ambassador to the U.S.) Zhang Wenjin's address to the U.N. in September 1981, when he said, "It would be contrary to the international scene to consider that the Soviet Union is on the defensive and that its deep predicament is forcing it to consider a retreat," FBIS, September 24, 1981, p. A2.

28. See the Xinhua report on an article by Zong He, SJZS No. 11 (June 1, 1983), in FBIS, June 2, 1983, p. A1 and excerpts of the article in Beijing Review no. 32, (August 8, 1983).

29. See the commentary on the U.S. and Soviet balance of power in SJZS No. 23 (December 1, 1983), FBIS January 5, 1984, p. A1 ff. Zhao's remarks can be found in FBIS, January 16, 1984, pp. B1–2 and January 17, 1984, pp. B1 and B12.

30. Zhao Ziyang, speech at a rally on July 18 celebrating the 30th anniversary of the "five principles of peaceful coexistence," FBIS, July 18, 1982, pp. A1–2; and Huan Xiang, RMRB, July 17, FBIS, July 18, 1984, pp. A3–6.

31. For a creative discussion of three similar "socialist projects," see Edward Friedman, "Maoism, Titoism, Stalinism: Some Origins and Consequences of the Maoist Theory of the Social Transition," in Mark Selden and Victor Lippit, eds., The Transition to Socialism in China (M.E. Sharpe, Inc., 1982).

REORGANIZATION AND MODERNIZATION IN POST-MAO CHINA

By Christopher M. Clarke*

CONTENTS

	Page
Summary	90
I. Introduction	91
II. Deng Xiaoping and the Logic of Organizational Reform	91
III. Organizational Reform	94
A. Personnel Reform: Rehabilitation	94
B. The Return of the "Second Line of Leadership": Staff Support for Policy Making	95
C. Reforming the Structure for Policy Implementation	97
D. Extending Reforms Outward and Downward	100
E. Institutionalizing Organizational Reforms	101
IV. Conclusions	105
Notes	106

SUMMARY

After the death of Mao Zedong in 1976, the Chinese leadership turned its attention to reestablishing stability and economic productivity. This called for a wide range of social, economic and political reforms. Reformist leaders, led by Deng Xiaoping, realized that such reforms would have to be implemented by specific people through a certain organizational context. In 1977, this context was not hospitable to reform.

Between 1977 and 1984, the reformers in China's leadership systematically overhauled the organizational structure of power. They began by rehabilitating past supporters; reinstating a Central Secretariat and pushing the politburo into the background; reorganizing the state bureaucracy which must implement their policies; overhauling local organs of power from province down to the farm and factory; and shaking up the military.

On paper, their successes have been impressive. However, the long-term viability of those reforms depends upon at least three factors. First is the extension and consolidation of the reforms to the grass-roots level, including a successful "rectification" of the Party membership. Can pressure for reform be maintained when "Heaven is high and the emperor far away"?

Second, can the reforms, even at the center, be maintained in the face of heavy systemic and historical pressure to expand both the bureaucracy and bureaucratism? Finally, what will be the effect of

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the transition of power to a new "third generation" of leaders with experiences and training substantially different from both their predecessors and their likely successors now being trained in joint venture management positions and at Harvard Business School?

The answer to sustaining the reforms seems to be to shift from reforms of the *structure* to reforms in how the system *functions*, including reforms in ther personnel, incentive, pricing and allocation systems. Such fundamental systemic change will likely prove difficult for China's "third generation" of political leaders composed of engineers and technocrats.

I. INTRODUCTION

The passing of Mao Zedong in September 1976 marked the end of an era in modern China. For more than a decade, all major decisions on national policy and on appointments and dismissals of leading personnel were subject to the arbitrary interventions of one man. Moreover, the priorities of this man centered on perpetuating class struggle and continuing the revolution. Economic construction took a very secondary position to ideological and cultural "revolutionary purity". The results of this decade of "patriarchal, feudal" rule are now generally acknowledged, both within China and outside, as disastrous.

Although some leaders resisted the most extreme and irrational policies throughout this period, it wasn't until the death of Mao and the removal of his closest supporters in fomenting and perpetuating the Cultural Revolution that China's top leaders began to realize the full extent of economic and social dislocation. Incentives for production, mechanisms for quality control, and concern with economic responsiveness to social needs and desires had been seriously undermined. Irrational concentration on heavy industry had resulted in excess production and stockpiling of capital goods while the manufacture and marketing of consumer goods was virtually ignored. Serious bottlenecks had developed in energy and transportation. The industrial workforce was demoralized by the lack of discipline and incentive to produce, and factory management was undermined by egalitarian rhetoric.

In the countryside, too, administrative fiat determined cropping patterns, work conditions and payment schemes, often with little regard for the suitability of land, climate and experience, or the level of personal effort. Emphasis on local self-sufficiency in grain led to shortages of cash crops, and hence of raw materials for light industry.

The task facing the leadership in the post-Mao era was to reestablish stability and to get the economy moving again. This shift from preoccupation with "class struggle as the key link" to concentration on the Four Modernizations necessitated a wide range of social, economic and political reforms. The only person with the prestige, the program, and the experience to lead these reforms was the twice-purged Deng Xiaoping.

II. DENG XIAOPING AND THE LOGIC OF ORGANIZATIONAL REFORM

When he first returned to power after the Cultural Revolution, in 1973-74, Deng Xiaoping had attempted to blunt the effects of

Maoist policies on agriculture, industry, national defense, science, and education.[1] He performed the key staff work for the Four Modernizations program unveiled by Premier Zhou Enlai at the 1975 Fifth National People's Congress. Throughout 1975, as he increasingly took over responsibility for the administration of the government from the terminally ill Zhou, Deng pressed for "straightening out" problems in all fields.[2] His straightforward and uncompromising methods in identifying and dealing with these problems led to his second fall from grace in April 1976.

In 1977, after his second rehabilitation, Deng again took up the cudgel. With his extensive experience in Party, state and military bureaucracies, Deng understood that successful implementation of any policy, including his reforms, is dependent upon both the content of the policy and the context within which it is implemented.[3] He realized that he was operating in a largely inhospitable context.

First, Deng by no means had a working majority, or even a stable, pro-reform coalition, at the top levels of leadership. Before he could move forward with any of his reforms he would have to augment his supporters, weaken his opponents, and win over as many top leaders as possible who were still uncommitted.

At the same time, China's political leaders and bureaucrats were still operationally governed by the perpetuation of "class struggle as the key link" and by the "two whatevers".[4] Deng began an ideological and psychological campaign to "emancipate the mind" and to encourage people to "seek truth from facts" in order to change this element of the context.[5]

Deng realized too that his reform policies, including his ideological emancipation, would have to be implemented through institutional mechanisms staffed by individual human beings. The organizational and personnel context could contribute to or obstruct the implementation of his policies. As Deng put it:

> Once the political line has been set, it takes people to carry it out in concrete ways. The results will be different depending on the kind of people who carry it out, whether those who agree with the Party's political line, or those who don't agree, or those who take an attitude in between.[6]

Thus Deng expected the the first stage of his reform program to entail the removal or neutralization of his opponents. However, he also realized that the sort of *ad hoc* purge so common during the past 30 years would not guarantee the permanence of his other reform policies. He himself was the best indicator that the disgraced could return to power and that current policies could be reversed. What would be needed was nothing less than a fundamental reform of the organizational structure within which policies were formulated, debated, implemented and evaluated.

According to Deng's assessment, as late as 1980 China's organizational structure was still "very unsuited to the needs of the Four Modernizations," [7] characterized as it was by—

> overstaffing, duplication of work, unclear responsibilities, too many unqualified personnel, failure to shoulder responsibility, and lack of spirit, knowledge and efficiency in work.[8]

State and Party organizations had proliferated since the early 1970s. The State Council, for example, had expanded from fewer that 30 ministry-level agencies in the early 1970s to some 51 by 1982. The government contained more than 1,000 ministers and vice ministers, with 5,000 section and bureau chiefs, and in excess of 600,000 cadres at all levels. Each department faced a similar problem. In 1980, the Ministry of Coal had 11 known vice ministers, at least three of whom were inactive and "near retirement". The Ministry of Metallurgical Industry had almost 20 vice ministers, many of whom were either inactive or in charge of major installations outside Beijing.

Altogether, Deng Xiaoping estimated that central-level personnel could be reduced by one-fourth to one-third, a RIF of four to five million people within a period of two years. This would be followed by comparable reductions at all levels down to the enterprise, and in such mass organizations as the trade unions, Communist Youth League, and women's federation.[9]

The post-Cultural Revolution proliferation of agencies and personnel had been accompanied by a decline in work efficiency which Deng blamed on three basic problems. First, power had become over-centralized. On the one hand,

> Leading organizations at all levels have been managing many matters which they ought not to manage, which they can't manage well, or which they can't manage at all.[10]

Moreover, bureaucrats at the "working level" faced a serious crisis of competence. Most of those promoted during the past decade lacked the technical training to perform their jobs. In addition, they now found themselves out of step with the regime's marching orders.[11] By contrast, rehabilitated bureaucrats were often ten years out of date with the professional and technical aspects of their jobs, and many of them, having suffered serious psychological trauma during the Cultural Revolution, were incapable of the kind of decisive action required by the new reform policies. Consequently, most matters were "kicked upstairs" for decision by senior leaders. As a result, leading cadres were seriously over-burdened, often holding many concurrent positions. This meant that no leader had adequate time to study the complex problems on which he must make decisions. It meant that Party and government functions tended to become blurred, as senior leaders concurrently held top posts in both systems.

The problem of an aging leadership enjoying a lifelong tenure and blocking the promotion of "younger, better educated, more technically competent" successors constituted Deng's second explanation for organizational inefficiency. Indeed, Deng saw the problem of generational transition as probably the most crucial issue facing him and his colleagues:[12]

> If we do not launch this revolution (of administrative structure) and let old and sick men block the road of those who are younger and who have zeal and capability, not only will there be no hope for the modernization program, but the survival of the Party and state will be in question.[13]

In 1981, Deng revealed that the leadership's task over the next five years would be to discover, train, promote and employ at least 50,000 cadres from 40 to 50 years of age from the pool of more than 600,000 pre-Cultural Revolution graduates of college or technical secondary school.[14] Moreover, promising cadres should be eligible to jump promotional steps, rising rapidly commensurate with their talents, even to the level of the Central Committee.[15]

Deng's third cause of organizational inefficiency would be in some ways the most difficult with which to deal. It was the lack of rules, regulations, job descriptions and personnel criteria fostered by the anti-bureaucratic ethos of the Cultural Revolution. In short, China's bureaucracy suffered from a lack of regularized and institutionalized patterns of relationship. As Deng himself put it:

> Another cause of bureaucratism is that in the leading organs of our Party and government, and of various enterprises and institutions, there has long been a lack of strict administrative rules and regulations and a system of personal responsibility from top to bottom, a lack of clear stipulations concerning the responsibilities and jurisdiction of each organ and even each individual, so that there are often no regulations to follow and most people often can't independently and responsibly handle things they ought to, whether big or small . . . Furthermore, cadres lack regular methods for recruitment, reward and punishment, retirement, resignation or replacement (*taotai*).[16]

The temporal sequence of organizational and personnel reform since Deng Xiaoping's return to power in 1977 has followed a clear and very interesting pattern. Deng first set out to surround himself with colleagues from the past who would support him in pushing for reforms. The initial step in this process was to seize control of the apparatus which handled high-level personnel actions in the Party.

Once Deng had engineered the rehabilitation and reinstatement of a number of senior colleagues, he turned his attention to reforming the system of staff support for policy making, principally the organizational structure of the central Party apparatus. By 1980-81, with a stable leadership coalition and an improved policy making support structure, Deng and his reformist allies began to reorganize the administrative structure for policy implementation, including the State Council, the provincial leading organs, and lower level Party and government agencies, as well as the military. Finally, with substantial successes achieved in these areas, the leadership has turned to the most difficult and crucial problem of organizational reform: establishing a rational and efficient personnel system. The remainder of this paper will briefly examine each stage of this organizational and personnel reform process.

III. Organizational Reform

A. PERSONNEL REFORM: REHABILITATION

Deng Xiaoping's most pressing need immediately after his return to power in 1977 was to build a nucleus of support for his reform policies at the top of the leadership. One of his very first steps in pursuing this goal was to position his close supporter and protege, Hu Yaobang, to take over responsibility for high-level personnel actions from his opponents.

During the latter stages of the Cultural Revolution, the Central Committee's General Office had taken over most of the responsibility for the personnel dossiers and *nomenklatura* system of high-level officials. This office in 1977 was headed by Party Vice Chairman Wang Dongxing, Mao's former bodyguard and the commander of the security forces which "protected" high-level officials and spied on them for Chairman Mao. Shortly after Deng Xiaoping's rehabilitation, Hu Yaobang became Wang's deputy in the General Office. Within a few months, however, the personnel function was removed from the General Office and taken over by the newly-reestablished Organizational Department of the Central Committee. Hu moved over to chair this department and was given a mandate to "redress unjust, false and wrong cases" [17] of purged Party leaders, cases implicitly mishandled by Wang Dongxing and the General Office.

Between late 1977 and early 1980, the Organization Department reexamined and reversed thousands of cases. Pre-Cultural Revolution associates and allies of Deng Xiaoping, including Xi Zhongxun, Yang Shangkun, An Ziwen, Hu Qiaomu, and Bo Yibo, were reinstated in the Central Committee. In addition, Deng was joined on the politburo by Wang Zhen, Mme. Deng Yingchao, Peng Zhen, Hu Yaobang, and Zhao Ziyang, and on its standing committee by the venerable Chen Yun. All of these individuals were valuable allies in Deng's reform effort.

Deng was rather less successful in removing opponents of his reforms. After more than two and a half years of struggle, he was able to remove only four relatively minor players from the politburo. He was, however, able to shift the locus of power and decision making away from the politburo, where his opponents were strongest, by reestablishing the system of a "first" and "second" line of leadership.

B. THE RETURN OF THE "SECOND LINE OF LEADERSHIP": STAFF SUPPORT FOR POLICY MAKING

By the time of the Central Committee's Third Plenum in December 1978, Deng had acquired a nucleus of personal support at the top and had built a coalition with his more moderate colleagues. He and his allies now took their first organizational steps to reduce the centrality of the politburo in the political process and to push most of its members into the "second line of leadership".

The Third Plenum established a Central Discipline Inspection Commission. The purpose of the new commission was briefly stated in the Plenum's communique:

> Leading Party cadres at all levels should take the lead in strictly observing Party discipline. Disciplinary measures should be taken against all violators of Party discipline with no exception, so that there is a clear distinction between merits and faults, awards and punishments. . . . . .The plenary session elected a 100-member Central Commission for Inspecting Discipline, headed by Comrade Chen Yun. *This is an important measure to guarantee implementation of the Party's political line.*[18]

Notice was thereby served that cadres who continued to obstruct reforms would be scrutinized, censured and possibly punished. While the commission's writ was unlikely to reach to the very top level, the function of investigative watchdog over ideological and organizational behavior was neatly removed from the politburo.[19] Moreover, assisting the newly-rehabilitated Chen Yun in running the commission would be Deng Xiaoping's allies, Deng Yingchao, Hu Yaobang and Huang Kecheng. No major opponent of Deng and his reforms was appointed to the commission's leadership.

However, the principal blow to the position of the politburo, and to the status of Party Chairman Hua Guofeng, the symbol and ral-lying point of opposition to Deng's reforms, was the reestablishment of the Central Secretariat at the February 1980 Fifth Plenum. This agency, disbanded since the Cultural Revolution, was the medium through which Deng himself had risen to power during the 1950s. Deng now outlined the functions of the revived Secretariat:

> Collective leadership decides on major issues. Specific items of business, or aspects of business, once handed over to someone must become his responsibility and his specialty. We should say that in the past [i.e. under Deng's leadership] the work efficiency of the Secretariat was not too bad. One of the reasons was that once a decision had been made and handed over to a specialist to handle, he in fact had great power to handle the problem independently . . . I hope that from the reestablishment of the Secretariat, the Party Center and the State Council will take the lead in adopting the collective system . . . In some matters, the Secretariat and the State Council need not have all members attend; several people can exchange views and then decide. On some matters, they can handle things and simultaneously report to the politburo and its standing committee. On matters which must be discussed with superiors, they can wait. Matters which can be handled and filed ought not to be delayed.[20]

In harkening back to the way the Secretariat operated under his own tenure, Deng was implying a diminished role for the politburo and the Party chairman. The specialists of the Secretariat (and similarly of the State Council) would now handle all but major policy issues, reporting not to the chairman but to the collective leadership in which Deng had the most powerful voice. Moreover, the specialists' staff work would largely determine the options facing the politburo, even on major decisions of basic policy. This would work to the advantage of Deng, Chen Yun and other senior leaders with extensive administrative experience and widespread connections in the Party and state bureaucracies. It would further isolate Hua Guofeng and other Cultural Revolution beneficiaries with little experience or base of support in the key national bureaucratic systems.

In short, Deng was threatening again to put the politburo in the very situation of which Mao had complained in 1958:

> The politburo has become a voting machine, like Dulles' United Nations. You give it a perfect document and it won't do not to pass it. Like performing an opera, when the show has been announced you simply must go on stage and perform. . . . You are experts, and also red. Most politburo members are red but not expert.[21]

More specifically, the appointment of Hu Yaobang as General Secretary threatened the position of Chairman Hua in two ways. First, it could remove Hua from the routine information flow of the Party bureaucracy. Deng knew from experience the power of the head of the Secretariat over the chairman. As Mao had complained in 1966:

> Deng Xiaoping never consults me. From 1959 until now [October 1966], he hasn't consulted me on anything. At the August 1959 Lushan meeting, I wasn't satisfied. But whatever he said went and I wasn't able to do anything about it.[22]
>
> Deng Xiaoping is deaf. When we hold a meeting, he sits far away from me. In the 6 years since 1959, he hasn't reported to me. He only relies on Peng Zhen for the work of the Secretariat. . . . When Li Fuchun took a year off to rest, I didn't even know who took control of work at the State Planning Commission. Fuchun observes proper discipline. On some matters, he reported to the Secretariat, but the Secretariat didn't speak with me. Deng Xiaoping keeps me at a respectful distance.[23]

In addition, because Hu Yaobang was Deng's long-time friend and protege, Hua knew that he, not Deng, would suffer the fate of being treated like a "dead parent at a funeral."[24] Deng would remain clued in and in control.

Nor was Hua able to avoid being cut out by infiltrating his supporters into the membership of the Secretariat. The ten newly-appointed secretaries represented a coalition of reformers and conservatives, with the Cultural Revolution beneficiaries completely shut out. The reestablishment of the Central Secretariat not only pushed the politburo into the background, and most of its members including Hua Guofeng into the "second line of leadership," it also marked the transition from *ad hoc* personnel actions to a rearrangement of the institutional structure of power in post-Mao China.

C. REFORMING THE STRUCTURE FOR POLICY IMPLEMENTATION

The process of reforming the administrative structure for policy implementation followed a course similar to the reforms of the Party's policy making support apparatus, but began a bit later. Following the intense debate and change in economic policy which took place before and at the crucial December 1978 Third Plenum, a number of Deng's senior allies were brought into the top levels of the state apparatus, just as they had been reinstated in the Party leadership. Notably, Chen Yun, Bo Yibo and Yao Yilin became vice premiers in July 1979.

With this nucleus of support at the top of the State Council, the reformers began to employ organizational methods of isolating their opponents, including Premier Hua Guofeng, from their areas of expertise and their bases of support in the government as well as the Party. One of the first measures was the March 1979 establishment of the State Agricultural Commission, set up to supervise the implementation of liberalized rural policies like those being pioneered in Sichuan and Anhui.[25] Agricultural policy was one of the few areas in which Hua and his supporters had any claim to authority or widespread support, and the establishment of the SAC removed them from direct control over it.

Similarly, between 1979 and 1980, four State Council commissions were set up to coordinate implementation of reform policies in specific sectors, and to overcome obstruction and footdragging.[26] However, the most important organizational measure, although largely overlooked at the time, was the establishment of the State Financial and Economic Commission (SFEC).

The SFEC was set up in July 1979 "to strengthen unified leadership over financial and economic work" and to "study the question of restructuring the economic system and economic structure".[27] In sum, the SFEC was to oversee the dismantling of Hua Guofeng's entire 1978 economic program and its replacement by the new eight-character policy of "readjustment, restructuring, consolidation and improvement" passed by the Third Plenum. The author of the eight-character policy, Chen Yun, newly appointed a vice premier, became chairman of SFEC. Now Deng Xiaoping had eclipsed Hua in administering the State Council while Deng and Chen together had taken over responsibility for economic policy.

By early 1980, Deng's tactic of "geriatrification and proliferation" of the State Council bureaucracy had all but achieved its aim of bringing about a policy transformation and pushing his opponents into the "second line". He could turn his attention from *ad hoc* appointments and dismissals to his long-range goal of "streamlining and rejuvenating" the bureaucracy.

The first stage of this process was completed at the Third Session of the Fifth National People's Congress in September 1980. Seven elderly vice permiers either retired or were removed. Hua Guofeng stepped down as premier in favor of the reformer, Zhao Ziyang, who would be assisted by another Deng associate and reform advocate, Wan Li.

The second stage of "streamlining and rejuvenation" in the State Council took almost a year and a half of preparation. Finally, however, between March and May 1982, Premier Zhao announced a massive restructuring of the government. The number of vice premiers was reduced from 13 to two. The number of State Council agencies was cut by almost half, and the number of ministers and vice ministers reduced from 505 to 167. Thirty new ministers were appointed while only 11 retained their positions. At the same time, the average age of ministers and vice ministers was lowered from 64 to 58 years of age, and the percentage of leading ministerial cadres with a college education rose from 38 percent to more than half.[28] Overall, staff of top government agencies was to be cut from 49,000 to 32,000.

Similar changes took place in the internal structure of the various State Council agencies as well. For example, the Ministry of Coal, one of China's most faction-ridden bureaucracies, was overhauled. Minister Gao Yangwen, an old associate of Hu Yaobang in youth work, was retained as minister while all but one of the vice ministers were removed. The new appointees ranged in age from 44 to 54, had extensive technical and practical experience, and appeared to espouse the same dynamic work-style and liberated thinking as Minister Gao. These new vice ministers received extensive favorable press attention. Athough factional problems have not been entirely solved,[29] the dominant impression one gets of the Ministry of Coal is one of vital, active and pragmatic leadership.

The merger of the ministries of water conservancy and of electric power appears to have been the culmination of another in a series of attempts to reconcile the interests of these competing but complimentary agencies.[30] The process of merging the ministries was carefully engineered over a considerable period of time. Beginning in mid-January 1982, "opinion polls" were circulated to more than 800 cadres at or above the deputy department director and sixth-grade engineer level, soliciting opinions on restructuring, and requesting "nomination" of persons to be considered for promotion to minister or vice minister. This was followed by a series of discussion meetings.[31] As a result, the 26 ministers and vice ministers under the two ministeries were reduced to four. The highly respected Mme. Qian Zhengying remained as minister. Her senior subordinate would be Li Peng, stepping down as minister of electric power.[32] One additional vice minister from each ministry would remain. The average age of the ministry's top leaders was reduced from 65 to 60.

At the lower levels, the previous 35 bureaus of the separate ministeries of power and water conservancy were consolidated into 16 and the staff was cut in half. The number of bureau directors was reduced by 50 percent and their average age lowered by 6 years, to 54. More than two-thirds of the bureau directors would now be college graduates or their technical equivalent.

Under this new arrangement, the leadership expects coordination of the various aspects of planning for hydroelectricity, thermoelectricity and water conservation to be enhanced. According to an official statement, for example, in the past, "regarding such water conservancy and hydroelectricity engineering projects as those at Danjiangkou and Sanmenxia, there has been incessant argument for many years about such problems as investment, application, management, repairs and profits. Disputes were taken all the way to the State Council. Since amalgamation, however, it has been possible to resolve many problems internally." [33] Of course, numerous other problems will continue to involve more than one agency, both centrally and locally, and the conflict over electric power needs vs water conservation priorities will continue to be strenous, even if intramural.[34]

Among the major outcomes of the Spring 1982 State Council restructuring was a recentralization of certain aspects of economic activity. One of these was macro-level planning and supervision. Fewer vice premiers were now to assume greater personal responsibility for supervising policy implementation. While the size and staff of other agencies were being cut back, the State Planning Commission was being expanded, and the State Economic Commission absorbed the commissions for energy, agriculture and machine building as well as several smaller agencies. A powerful new Ministry of Urban and Rural Construction and Environmental Protection was set up to take the place of the capital construction commission and related organs.[35]

A major consolidation also took place in the foreign trade sector. Four bodies, the import-export commission and foreign investment control commission and the ministries of foreign trade and economic relations with foreign countries were merged into a new Ministry of Foreign Economic Relations and Trade. Since the establishment of the two commissions some 18 months earlier, the bureaucratic process of getting approval for investment projects and the difficulties of coordinating trade policy had grown rather than diminished. For example, approval of a major cooperative project with a foreign company would have to clear the relevant ministry, the local government, the Ministry of Foreign Trade, the Foreign Investment Control Commission, the Import-Export Commission, the Bank of China, the State Capital Construction Commission, the State Economic Commission, the State Planning Commission, and often the State Machine Building Industry Commission and the State Council itself. The backlog on applications for joint ventures alone was staggering.

Thus, the restructuring of the foreign trade apparatus necessarily entailed a reconcentration of authority over some aspects of decision making even while other functions continued to be decentralized. MOFERT set up export quota and visa systems, established port commissioners' offices in four major port cities, and attempted to clarify the lines of authority between their own foreign trade corporations' headquarters, the FTC branches in the provinces, and ministerial FTCs not under their direct control. The Chinese throughout this process have taken pains to reassure foreign traders that the reforms would not harm foreign business relations but would actually improve them.

D. EXTENDING THE REFORMS OUTWARD AND DOWNWARD

Important as the reorganization of the State Council has been, the center of power in China continues to be the Communist Party. Thus, simultaneous with the restructuring of the government apparatus, the Central Committee in May 1982 reorganized and streamlined its internal structure. Staff in the Central Committee's 30 component departments was cut by 17.3 percent. The number of bureaus under these departments was reduced by 11 percent. The number of department heads and deputies was reduced by more than 15 percent, and their average age was lowered to 60, a drop of four years. Similar reforms took place at the bureau and office level.[36]

Having reorganized the Party's internal administrative structure during the Spring, the Party's leaders spent the summer working on a crucial step in rejuvenating and reforming the leadership: preparing for a new Party congress and the election of a new Central Committee. When the Twelfth National Congress of the CCP met in September 1982, almost half of the full members of the new Central Committee and fully 83 percent of the alternates were newly elected.[37] The average age of members appears to be about five years younger than their predecessors.[38] The State Council, where reforms had proceeded farthest, approximately doubled its representation on the Central Committee. Overall, government bureaucrats accounted for almost half of the members. In the words of one analyst:

> In brief, the new members of the 12th CC seem to posses all the virtues that the Deng-Hu group looks for: they are middle-aged cadres with a high cultural level and technical knowledge in economic and other functional fields. They have long work experience in their respective fields and "stood firmly on their jobs" even during the chaotic period of the CR (Cultural Revolution).[39]

With the central apparatus basically reorganized by Summer 1982, the leadership turned its attention to reforming the provincial Party and government structures. Between the end of the year and May 1983, almost one-third of the Party's provincial first secretaries and all but three of the governors were replaced. Nearly two-thirds of the top provincial officials retired or retreated into the "second line".[40] Provincial administrative departments were reduced from an average of more than 60 to fewer than 40, a cut of 30-40 percent. The number of bureaucrats was reduced by one-third, and top provincial leaders were cut by almost half. Governors and vice governors are now, on average, almost 8 years younger than their predecessors, and the number of college-educated provincial leaders has increased by 26.6 percent, to almost two-thirds.[41]

During 1983 and 1984, these reforms were extended to the prefectural, county, municipal and town level. Initial results show the number of leaders at these levels has been reduced by 36 percent, while the precentage with a college education is up 14 percent to 44 percent. Their average age is down to 50, a reduction of 8 years. [42]

According to Vice Premier Tian Jiyun, when this reorganization is complete, the number of prefectural and municipal agencies will have been cut by 30 percent, and their staffs reduced by one-fifth.[43] As of the end of 1983, 35 prefectures had been abolished, 22 counties completely absorbed by cities, and 368 counties placed under the administration of nearby municipalities in an attempt to reduce bottlenecks in the supply of agricultural and light industrial raw materials to cities and to improve the flow of consumer goods to increasingly well-off suburban peasants. This means that nearly one-fourth of China's counties are now under the jurisdiction of a nearby city.[44]

Nor has the military been able to escape a thorough reorganization.[45] The process first gained public exposure in September 1982 with the appointment of 43 top military leaders, including six of eleven regional commanders and several key central leaders, to the Party's Central Advisory Commission, a half-way house to retirement. Within weeks, leaders of three regions had been changed along with at least 170 senior officers. In the ensuing few months, six of eleven regional commanders, and at least 20 of 28 district commanders were replaced. More than 1,000 regimental officers, including 40 general officers, were retired in August 1983 in the show-place Beijing Military Region alone. Mounting evidence indicates that this "youth movement" is reaching the provincial and sub-provincial frontline units as well.

So far, however, despite the successes in the People's Liberation Army from the second level downward, little change has taken place in the very top leadership. Deng Xiaoping remains commander-in-chief, apparently unable to find an acceptable successor. His top dozen senior colleagues range in age from their late 60s to their mid 80s, and no obvious replacements have yet emerged.

E. INSTITUTIONALIZING ORGANIZATIONAL REFORMS

Consolidating agencies and reducing staff, raising the educational level of leaders, and lowering their average age are indicative of the Chinese leadership's seriousness about running a leaner, younger, more technically competent system. Carrying out such a one-time reorganization does not, however, assure that its effects will last, nor does it necessarily address the central problem of improving bureaucratic work efficiency.

The Chinese have only recently begun to formalize their organizational and personnel reforms into a body of laws, rules and regulations. For example, in September 1982 the new Communist Party constitution mandated that the Party's General Secretary, Military Affairs Commission chairman, and Discipline Inspection Commission first secretary must all be members of the politburo's standing committee. In addition, Central Committee alternates are now listed in order of the number of votes they receive; the top vote-getters fill vacancies as full members. Despite these tentative beginnings in regularizing Party personnel matters, the CCP leadership has still not addressed the crucial issues of tenure in office or methods of recruitment to the Party's top organs. Indeed, promising young cadres still seem to be identified almost by chance, and their elevation often continues to be dependent upon the intervention of powerful patrons.[46]

Regularization of personnel matters in the state apparatus has understandably gone a bit farther. The 1983 state constitution, for example, stipulates limitations on tenure for top officials. The PRC president and vice president; National People's Congress Standing Committee chairman and vice chairmen; the premier, vice premiers and state councilors; the chief justice of the supreme court and the chief procurator are all limited to two consecutive five-year terms. In addition, members of the NPC Standing Committee are prohibited from holding any other administrative, judicial or procuratorial post.[47]

In March 1982, Premier Zhao Ziyang announced a number of new rules for State Council agencies. Each ministry would be limited to one minister and three or four vice ministers. Departments and bureaus were limited to a director and two deputies. Ministers, under normal conditions, would have to retire at 65, with vice ministers and directors and deputy directors of departments and bureaus forced out at 60. Strict staff level limits were also set and a prohibition against further organizational proliferation was to be enforced.[48]

Similarly, the Central Committee "stipulated that the top three cadres (in) the leading bodies at the provincial, municipal and autonomous regional levels include one around 55 years of age and that one-third of the members of the standing committees should be under 55." In addition, "one-third of them should have received a college education."[49] The central leadership has also announced "that county party leaders should be 30 to 50 years of age. Their average age should be around 45. County government leaders should be younger than local party leaders, and county magistrates under 50. One-third of county leading bodies *(sic)* should be college graduates."[50] It is clear from accounts at the time of the provincial reorganization in late 1982 that central leaders scrutinized carefully the name lists of new appointees to make sure they fulfilled these criteria.

Concurrent with these initial efforts to regularize some personnel matters, the leadership initiated three interrelated measures to improve bureaucratic work efficiency. First, a "responsibility system" was instituted from the premier down.[51] Just what this was to mean was spelled out in the Party's theoretical journal, *Red Flag:*

> . . . (T)he premier holds the dominant post in the leadership system of the State Council although the State Council is under collective leadership. The vice premiers and the state councilors are assistants of the premier . . . The premier not only has the power to call and preside over the regular meetings and plenary meetings of the State Council, but also has the power to gather correct opinions and make decisions of the State Council during the meetings in which major problems are discussed fully by all members.[52]

With leaders at all levels now taking on personal responsibility for the work of their units, the need for explicitly defining the scope of jurisdiction, the tasks and obligations of each agency and each position has become more urgent. Leaders are now calling for doing away with the past system of "creating a job to accommodate a person." [53]

The new system of personal responsibility for more clearly defined functions is now to be spread downward in both the Party and state apparatus all the way to the level of local, enterprise and factory cadres. This requires higher leaders simultaneously to decentralize and delegate a great deal of responsibility and authority and to intensify their supervisory and coordination efforts. In official terminology:

> Economic departments should separate administration from economic management step by step, broaden the decision-making power of enterprises, and enable them to act as relatively independent socialist economic units.[54]

Thus, beginning in 1978 and 1979 and intensifying from 1981 to 1983, certain aspects of economic decision making authority were decentralized along both organizational and regional lines.[55] For example, more than 120 major corporations and hundreds of smaller or subsidiary companies have been formed, responsible for profits and losses. A few of these, like the big "trust companies"—e.g. the China State Shipbuilding Corp. and the China Petrochemical Corp.—are responsible directly to the State Council for planning, research and development, production, management, marketing, and foreign trade. Most of the new corporations, however, answer to an industrial ministry or local government bureau for the integration of production and domestic marketing of a product, and do not have authority over foreign trade. At the bottom of the corporate spectrum are numerous local "agricultural-industrial-commercial" companies run by production brigades and state farms, and small conglomerations of neighborhood collective factories. Each level has been awarded different authority over certain aspects of economic decision making.

Regionally, too, lower level governments now retain more of their income, and have greater latitude in how to spend it, than before. Control over accepting foreign investment, over selling locally produced goods overseas, and over spending foreign exchange has also been substantially decentralized.

At the same time, the role of coordination, planning and supervision by higher level authorities has been strengthened. As mentioned above, the functions of the State Planning Commission and the State Economic Commission were delineated and augmented in 1982. The role of the central and local Party discipline inspection commissions in ferreting out crime and corruption has been strengthened, and a new state security apparatus has been set up for counter-espionage. In addition, a state auditing network was established in 1982, empowered to inspect the books of all government departments, state owned enterprises and commercial establishments, financial institutions, major collective enterprises, and the People's Liberation Army. They can recommend sanctions to the offending unit's supervising agency, or in cases of serious violation, stop state allocations and bank loans, and freeze accounts.[56]

Bolstering this simultaneous spread of both responsibility and authority has been a newly-established network of advisory and consultancy support services. Until mid-1982, the best known of these consultants were the influential academic and intellectual advisors to top state agencies and political leaders. Hu Qiaomu and Xue Muqiao, in particular, provided much of the economic and theoretical expertise behind Deng Xiaoping's reform program.[57]

These high level advisors have now been joined by dozens of specialized consulting companies set up by professional societies, corporations, factories and universities to offer advice, project feasibility analysis, and economic matchmaking services.[58]

Part of this network, perhaps an unfairly maligned part, is the system of advisory agencies set up in Party and state organs in 1982-3 from the central level downward. The establishment of these commissions served three purposes. First, they were to serve as an honorable half-way house to retirement, opening up leading positions for younger cadres to move up without costing the outgoing official his prestige and perquisites.[59]

Indeed, it became clear in 1982 that those "retiring" would be well taken care of. Their benefits would include full pay for life, plus a one *yuan*-per-month bonus for every year worked since "joining the revolution"; retention of housing, vehicles, telephone, and other accoutrements; yearly travel for "inspection trips" for higher cadres; and in many cases, a one grade promotion on retirement. Cadres would continue to have access to classified documents and to their former offices, and would retain the right to attend meetings and receive briefings.[60]

Despite their continued perquisites and occasional inspection trips, the advisory commissions served as a neat mechanism for forcing political opponents, the incompetent and the senile out of power. In the words of Central Advisory Commission executive Vice Chairman Bo Yibo:

> Comrade Deng Xiaoping stated when proposing the establishment of the Advisory Commission: "Advisors should know how to be advisors. . . . We must not arrange too much work for ourselves; the less the better."[61]

Third, the advisory bodies were intended to serve the important function of providing the newly appointed leaders with the information, experience, advice and support they would need to operate in the Chinese-Communist-bureaucratic context of their new positions. Particularly in the central ministries and provincial and local governments, and in industrial enterprises, new leaders would often not be familiar with the intricate network of mutual obligations, relationships and favors cultivated over a long period of time by their predecessors. Not having previously been privy to the organization's information flow, not yet having developed an extensive network of *guanxi* with senior leaders in related agencies, and not yet having installed a personally loyal coterie of lower level appointees could all mean delays and frustration for the new cadre. Permitting retired leaders to remain in the information loop and to attend meetings, of course, opened the possibility that they would not really relinquish power, but it could also serve to smooth out some of the bumps in transition.[62] As Deng Xiaoping saw it:

> The issue of lifelong tenure for leading cadres, though touched upon, has not yet been thoroughly solved; nor has the issue of cadres' retirement been thoroughly solved . . . The establishment of advisory commissions is an interim measure for changing the lifelong tenure system for our leading cadres to a retirement system. By adopting this expedient measure, we can facilitate this change. Perhaps, after the next three national (Communist Party) congresses, there will be no need for the advisory commission.[63]

IV. CONCLUSIONS

Has China's effort to reform its organizational system been successful? As pointed out above, the results in consolidating agencies and reducing staff, in raising the educational and technical level of leaders, and in lowering their average age have been impressive. At least at the central and provincial levels, and probably at the prefectural and county levels, the bureaucracy is leaner, and is led by younger, more technically competent cadres.

However, three questions remain. First, can these reforms be pushed successfully to the county, municipal, town, commune, brigade, and team levels, and into the factories and workshops, or will they lose momentum the farther they get from the direct supervision of Beijing? Is there a sufficiently large manpower pool with the requisite qualifications from which to draw local cadres, or has the whip-saw political process of the past 25 years left too many potential cadres disillusioned, alienated, and too poorly educated to take a leading role in the Four Modernizations?[64]

Second, can the reforms, even at the central level, be maintained in the face of heavy systemic and historical pressure to expand both the bureaucracy and bureaucratism? Can qualified new leaders be routinely identified, promoted, trained and employed, or will the influence of the Chinese social system and the Marxist-Leninist political system perpetuate China's penchant for gerontocracy? Will the privileged position of the Long March, anti-Japanese war, and revolutionary war generations stand in the way of the promotion of leaders of talent, or will the Party's effort to recruit younger, better educated members continue?

The success rate of administrative reforms in communist party-led states is not impressive. Several times in the past 40 years China has undertaken substantial organizational reform. During the 1940s, and most notably during the Great Leap and the Cultural Revolution, China's leaders contracted the size of the bureaucracy, reduced personnel and instituted other reforms.[65] These reforms seldom lasted more than a short time. Similarly, other communist party-led states have unsuccessfully engaged in administrative reforms such as Khrushchev's schemes to decentralize planning and split the Party into industrial and agricultural branches. Based on historical precedent alone, the prospects for China's current organizational reforms to endure are not bright.

In assessing the success to date of China's organizational reforms, however, the most important point is that so far they have been largely reforms of the *structure*. Only tentative efforts have been made at reforming how the system *functions*. For the reforms to be successful in the long-term, the emphasis will have to be shifted to changes in the nature of the interrelationships between people, between individuals and organizations, and between organizations. First in importance among such reforms is reform of the personnel system. The leadership must continue to overhaul its mechanism for identifying, promoting, training, rewarding and punishing, removing, and retiring cadres at all levels. As Deng Xiaoping put it, the "lifelong tenure system" must be transformed into a "retirement system".

Relatedly, the incentive system for cadres at all levels must be reformed. As long as rewards go predominantly to those who hesitate rather than innovate, to those with fine-tuned political antennae rather than technical and management expertise, the reform program will be in jeopardy.

Moreover, the leadership will increasingly have to deal with the behavioral and motivational side-effects of their institutional and partial reforms. In the countryside, the ability to get rich on the farm has made less attractive the prospects of *zuoguan facai* (becoming an official and prospering). Industrial wage and bonus reforms may well be having a similar effect on industrial management.[66] Fundamental reforms in the allocation and pricing systems will be needed before factory managers can really be held responsible for profits and losses.[67]

The final question emerges from the very need for reform of the personnel system: what will be the effect of the rise to power of the PRC's "third generation"? What are their experiences, proclivities, strengths and weaknesses? The generation of Mao Zedong, Zhou Enlai, Deng Xiaoping and Chen Yun was formed during a period of political, social and international revolution. Many travelled and studied abroad, usually in the West or Japan, and concentrated their energies and analyses on the military, social and political issues of the day.

Their successors, by contrast, are largely the product of a post-revolutionary order. They have been trained as scientists and engineers concentrating on solving practical problems of technology and production by using quantifiable and objective measures of rationality, system efficiency and planning. Their foreign experience, and foreign language capabilities, are largely confined to training in the Soviet Union and Eastern bloc, or under Soviet advisors in China.[68]

The individual self-interest as well as the training and background of this generation are likely to make them tend toward an "engineering" leadership approach, favoring tinkering with mechanical and institutional modifications of the basic Soviet system rather than experimentation with, or a shift to, a new economic system in which they have little or no expertise. This will create some tension not only with their relatively more ideologically and socially concerned predecessors, but with the "managerial" generation now being trained through exposure to Western concerns about behavioral and motivational aspects of leadership.[69]

In sum, China's post-Mao effort to reform its organizational system has scored some impressive successes in streamlining and rejuvenating the bureaucracy. The preservation and extension of these successes, and the continuation of reforms in China's economic, social, cultural and political systems, depend largely upon shifting reforms from structure to function, from form to process. This will likely prove a difficult lesson to learn for China's Soviet-trained "third generation" of technocrats and engineers.

NOTES

1. E.g. see purported texts of Deng's "Three Poisonous Weeds": "On the General Program of Work for the Whole Party and the Whole Nation," "On Some Problems in Accelerating Industrial Development," and "On Some Problems in the Fields of

Science and Technology" in Chi Hsin, *The Case of the Gang of Four*. Hong Kong: Cosmos Books, 1977 and pages 1-34 of *Deng Xiaoping Wenxuan* (hereafter DXPWX, *The Selected Works of Deng Xiaoping)*. Beijing: Renmin Chubanshe, 1983.

2. "Things Must be Straightened Out in All Fields," September 1975 in DXPWX, pp. 32-4.

3. See Peter S. Cleaves, "Implementation Amidst Scarcity and Apathy: Political Power and Policy Design," and Merilee S. Grindle, "Policy Content and Context in Implementation," both in Merilee S. Grindle, ed., *Politics and Policy Implementation in the Third World*. Princeton: Princeton University Press, 1980.

4. See Deng's "The 'Two Whatevers' Do Not Accord with Marxism," in DXPWX, pp. 35-6.

5. See Deng's "Emancipate the Mind, Seek Truth From Facts, Unite as One and Look Ahead," in DXPWX, pp. 130-43 and "Adhere to the Four Basic Principles," in DXPWX, pp. 144-70.

6. "The Organizational Line is the Guarantee for Implementing the Ideological and Political Lines," in DXPWX, p. 176.

7. "Persist in the Party Line, Improve Work Methods," in DXPWX, p. 244. See also "The Organizational Line . . . ," esp. pp. 177-8.

8. "Streamlining Institutions is a Revolution," in DXPWX, p. 351. See also "On the Reform of the Party and State Leadership System," in DXPWX, pp. 280-302.

9. "Streamlining . . . ," pp. 351-2.

10. "On the Reform . . . ," p. 288.

11. E.g. see Deng's "The Organizational Line . . ."

12. As Deng put it, "Now we are pressed for time . . . In 1975, Wang Hongwen said: Let's wait and see in ten years . . . I was already 71 in 1975, so we could not match them in a competition of age." "Persist in the Party Line . . . ," p. 244.

13. "Streamlining Institutions . . . ," p. 352.

14. "The Primary Task for Old Cadres is to Select Young and Middle-Aged Cadres," in DXPWX, pp. 339-43 and "On the Reform . . ."

15. E.g. see "On the Reform . . . ," pp. 284-5 and Deng's 1980 call for the Party to elect 50 members under 50 years of age to the 12th Central Committee in "Persist in the Party Line . . . ," p. 245.

16. "On the Reform . . . ," p. 288. *Taotai* literally means to be eliminated in competition, here translated as replaced.

17. *Beijing Review*, 8/30/82, p. 18.

18. See Communique of the Third Plenum, 12/27/78 in *Xinhua Weekly* #52, 12/30/78, emphasis added.

19. The best two analyses of the Discipline Inspection Commission are Graham Young, "Control and Style: Discipline Inspection Commissions Since the 11th Congress" in *The China Quarterly* #97, March 1984, and William deB. Mills, "Generational Change in China," in *Problems of Communism*, November-December 1983, especially pp. 31-2.

20. "Persist in the Party Line . . . ," p. 246.

21. Mao Zedong, "Talks at the Nanning Meeting, 1/12/58," in *Mao Zedong Sixiang Wansui!* (*Long Live the Thought of Mao Zedong*). np: 1969, p. 149. Mao's complaints were specifically against the economic and financial cadres of the government but Deng's secretariat treated Mao and the politburo much the same way.

22. Mao Zedong, "Talk at the Briefing of the Central Politburo, 10/24/66," in *ibid.*, p. 655.

23. Mao Zedong, "Talk at the Briefing of the Central Politburo, 10/66," in *ibid.*, pp. 661-2. Similarly, when Deng and Peng Zhen presented Mao with the "60 Articles on Agriculture" at the March 1961 Canton conference, Mao, who had apparently not been previously consulted, demanded, "Which emperor decided this?"

24. For Mao's complaint that Deng and Liu Shaoqi treated him this way, see Edward Rice, *Mao's Way*. Berkeley: University of California Press, 1972, p. 184.

25. On the State Agricultural Commission see Charles Y. Liu, "The State Agricultural Commission" in *The China Business Review* (hereafter CBR), January-February 1981.

26. They were the Foreign Investment Control Commission, the Import-Export Commission, the State Machine Building Industry Commission and the State Energy Commission.

27. See CBR, September-October 1979, p. 9.

28. The above taken from the author's "China's Organizational Revolution," in CBR, July-August 1982.

29. For example between the powerful China National Coal Development Corporation and the ministry.

30. The ministries were separately established in 1949, merged in 1958, split in 1979, and remerged in 1982. See Christopher M. Clarke and Kathryn Dewenter, *China Business Manual 1981.* Washington: National Council for US-China Trade, 1981.

31. Following based on "Good Results Noted in Newly Merged Ministries," in *Foreign Broadcast Information Service* (hereafter FBIS), 3/10/82, pp. K11-12 and "Li Peng, Chen Muhua Comment on Restructuring," in FBIS, 3/9/82, pp. K9-10.

32. Interestingly neither was an expert or highly visible proponent of nuclear power. Also, Li Peng would soon be promoted over Mme. Qian as vice premier in charge of energy. See author's biography of Li in "China's Third Generation," in CBR, March-April 1984.

33. Liu Jiancheng, "Organs Must Be Established on a Scientific and Rational Basis," *Guangming Ribao*, 3/28/82 in FBIS, 4/9/82, pp. K2-5.

34. See David M. Lampton, "Water Politics," in CBR, July-August 1983 and his contribution to this volume.

35. For more detail see author's "China's Organizational Revolution," esp. pp. 28-9 and "Bulletin from the State Council Concerning the Division of Labor between the State Planning Commission, the State Economic Commission and the State Science and Technology Commission," in *Bulletin of the State Council* #10, 7/10/82.

36. See *Xinhua*, 5/15/82 in FBIS, 5/17/82 and Clarke, "China's Organizational Revolution."

37. Kan Wei, "Analysis of the New Central Committee and Advisory Commission," in *Ta Kung Pao*, 9/11/82 in FBIS, 9/14/82, pp. W1-3 and Kan Wei, "Many Special Features in List of Alternate Central Committee Members," in *Ta Kung Pao*, 9/15/82 in FBIS, 9/17/82, pp. W1-2. See also Mills, *op. cit.*

38. Based on Table 5, p. 683 in Hong Yung Lee, "China's 12th Central Committee," in *Asian Survey*, June 1983.

39. *Ibid.*, p. 688.

40. See the author's "The Shakeup Moves Down," in CBR, September-October 1983, which discusses five examples. Provincial refers to the 29 provincial units, and governors include the top government official in all 29 units.

41. "Tian Jiyun on Administrative Reforms in 1984," *Xinhua*, 1/5/84 in FBIS, 1/5/84, p. K8 and *Xinhua*, "Reforms of Leading Bodies Yield Good Results," in *China Daily*, 1/25/84.

42. "Reforms of Leading Bodies. . ."; *Xinhua*, "'Remarkable' Progress Made in Readjusting Leading Bodies," in FBIS, 1/25/84; and *Xinhua*, "Streamlining of County Leadership Underway," in FBIS, 1/30/84.

43. "Tian Jiyun on Administrative Reforms in 1984."

44. "China Cuts Prefectures to Form New Economic Regions," *Ta Kung Pao*, 3/1/84. See also the author's "Reforms Continue at the Grass Roots," in CBR, May-June 1984 and the author's "China's Reform Program," in *Current History*, September 1984 for a discussion of attempts to set up cross-jurisdictional organization mechanisms to encourage economic flexibility.

45. Following draws heavily on the author's "The Lean Machine," in CBR January-February 1983; "China's Reform Program," and "Defense Modernization: How China Plans to Rebuild its Crumbling 'Great Wall'," in CBR, July-August 1984.

46. For example, Wang Zhaoguo, the former head of the Communist Youth League, was noticed by Deng Xiaoping during a tour of the Hubei No. 2 automotive factory. See Deng, "The Primary Task. . ." Similarly, many of the top *apparatchiki* in the Central Committee's organization owe their positions to long-standing ties with Hu Yaobang. Examples of this pattern of recruitment also abound in the State Council. For example the promotion of both Li Peng and Tian Jiyun to vice premier appears to have as much to do with high-level connections as with the admittedly impressive abilities.

47. The tenure of the chairman of the Military Commission is not so limited, suggesting that regularization is still subject to political necessity. See 1983 constitution, articles 65, 66, 79, 87, 124, 130, and on military commission, article 93.

48. See Zhao's report to the 22nd session of the 5th NPC Standing Committee, 3/8/82 in FBIS, 3.9.82, especially, p. K5, and *State Council Work Bulletin* #22, 12/20/83, "CCPCC Organization Department, Ministry of Labor and Personnel Circular on Strictly Controlling the Expansion of Organs."

49. "Song Renqiong Makes Speech," at 2nd National Conference on the Work of Party Schools, *Xinhua*, 2/22/83 in FBIS, 2/23/83, p. K3.

50. *Xinhua*, "Streamlining of County Leadership Underway."

51. See 1983 constitution, article 86 and Yan Jiaci, "On the System of Overall Leader Responsibility," in *People's Daily*, 1/31/83, in FBIS, 2/8/83, pp. K5-9.

52. Xu Chongde, "An Important Reform in the Supreme State Administrative Organ," in *Red Flag* #1, 6/1/82, in FBIS, 6/27/82, p. K17.

53. Yan Jiaci, "It is Imperative to Make the Administrative Machinery Operate Harmoniously and Rhythmically," in *Guangming Ribao*, 10/17/83, in FBIS, 11/2/83, pp. K4-8.

54. *People's Daily*, 8/9/83, in FBIS, 8/10/83, p. K7. See also Deng's comments in "Streamlining Government Institutions . . . ," especially p. 355.

55. For more detail see the author's "Decentralization," in CBR, March-April 1984.

56. See Zhu Liang, "New Auditing Office Will Streamline Economic Control," in *China Daily*, 9/14/83 and "Tian Jiyun at Auditing Office Inauguration," *Xinhua*, 9/15/83, in FBIS, 9/19/83, pp. K16-17.

57. E.g. see A. Doak Barnett, *China's Economy in Global Perspective*. Washington: Brookings, 1981, and Erik Baark, "Techno-Economics and Politics of Modernization in China," University of Lund, Sweden, discussion paper #135, November 1980; and Nina Halperin's paper in this volume.

58. Some of the best known are the China International Trust and Investment Corporation and its offshoot, China International Economic Consultants, and the Shanghai Industrial Consultants. See also, "Ministry of Machine Building Industry and Six Other Ministries Set up Two-Level Joint Consultation System to Better Serve Customers and Improve Economic Results," in *Joint Publications Research Service* #81927, *Economic Affairs*, No. 270, 10/5/82, pp. 30-1, and "Zhang Jingfu on Developing Consulting Services," from *People's Daily*, 7/21/82, in FBIS, 7/26/82.

59. E.g. see Deng's comments about Liu Lanbo's retirement as minister of electric power in "The Primary Task . . . ," p. 339.

60. See Takashi Oka, "China's 'Administrative Revolution' Moves Forward," in *The Christian Science Monitor*, 3/4/82 and "Veterans of 3rd Machine Building Ministry Resigns," in FBIS, 1/19/82, pp. K12-13. On inspection trips see "Bo Yibo Interviewed on CPC Advisory Commission's Work," *Xinhua*, 10/19/83, in FBIS, 10/25/83 and "*Liaowang* on Work of Central Advisory Commission," FBIS, 4/3/84.

61. "Bo Yibo Interviewed . . . ," p. K4.

62. It appears that in some cases "retirees" have indeed kept control. Both Deng Xiaoping and Bo Yibo, his senior subordinate overseeing reorganizaton affairs, have warned against this. Deng opined that the advisor's role is to remain "aloof and detached."

63. "Establishment of Advisory Commissions is an Interim Measure Toward Abolition of Lifelong Tenure for Leading Cadres," in DXPWX, pp. 368-9 as translated in FBIS, 7/27/83, p. K9.

64. E.g. William Hinton in *Shenfan* (New York: Random House, 1983) indicates that by the early 1970s virtually all available team members had served as a cadre and most were unwilling to do so again. For similar findings see A. Chan, R. Madsen and J. Unger, *Chen Village*. Berkeley: University of California Press, 1984.

65. E.g. see Harry Harding, *Organizing China: The Problem of Bureaucracy, 1949-1976*. Stanford: Stanford University Press, 1981 and Christopher M. Clarke, *The Politics of Bureaucratic Reorganization in the People's Republic of China: The State Council, 1949-1979*. Unpublished Ph.D. Dissertation, The Ohio State University, Columbus, Ohio, 1980.

66. Andrew G. Walder, "Rice Bowl Reforms," in CBR, November-December 1983. Similarly, expanded opportunities in both the city and countryside have made recruitment into the military more difficult, contributing to the revision of the conscription law in mid-1984.

67. See Barry Naughton, "The Profit System," in CBR, November-December 1983. Officials in the Chinese delegation to the Sino-American Joint Commission on Commerce and Trade, including high-level officials of the State Planning Commission, explicitly acknowledged the need for such allocative and pricing reforms in April 1984.

68. Prototypes of this generation are Vice Premier Li Peng, Minister of Nuclear Industry Jiang Xinxiong and Vice Minister of Water Resources and Electric Power Peng Shilu. See biographies in the author's "China's Third Generation," in CBR, March-April 1984.

69. For an interesting development of the theme of an "institutional" approach vs. a "liberal" approach among Chinese economists see Barbara Krug, "The Economists in Chinese Politics," in David S.G. Goodman, ed., *Groups and Politics in the People's Republic of China*. Armonk, NY: M.E. Sharpe, 1984. On training of a "managerial" generation see William Fisher's contribution to this volume and John A. Bing, "Project Management," in CBR, March-April 1984.

CHINA'S EXPERIMENT WITH FISCAL AND MONETARY POLICY

By Dean Carver*

CONTENTS

Page
I. Introduction 110
II. Direct Control—The Legacy of Mao 111
III. Economic Reforms: Efficiency at a Price 112
    Losing Control—Reform's Weak Link 113
    The Policy Debate 117
IV. The Shortage of Demand-Management Tools 117
    Fiscal Policy 118
V. Experimenting With New Fiscal Programs 121
VI. Making Monetary Policy an Option 124
    Banking 124
    Interest Rates 127
VII. Performance and Prospects 128

APPENDIXES

A. The Bonus System—Trial and Error Reform 130
B. Monetary Policy and International Trade 131

FIGURES

1. China: Source of Investment in Capital Construction 115
2. China: Currency Flows 120
3. China's Banking System 126

I. INTRODUCTION

Since the watershed Third Plenum of the 11th Central Committee in 1978, China has been involved in an unprecedented experiment with economic reform. In an effort to eliminate the tremendous waste and inefficiency that characterized the economy since the 1950s, Bejing began to push decisionmaking authority—once reserved for central planners—to local enterprises. It also promoted competition and loosened control to stimulate profit-oriented performance. The experiment, though limited, represented a major turnaround for what had been one of the world's most tightly controlled, egalitarian economies.

The autonomy spurred productivity—mainly in the rural sector—but it also left Beijing increasingly incapable of controlling macroeconomic behavior. Consumer and investor demand spurted, straining raw material and energy supplies and putting strong upward pressure on domestic prices. At the same time, fierce competition in the foreign trade sector caused a deterioration in

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China's terms of trade. The loss of control gave ammunition to critics arguing for a return to tight central planning. Faced with dropping the reforms or finding other control mechanisms, Beijing began experimenting with Western-style fiscal and monetary policies.

This paper briefly describes the tightly controlled, centrally planned economy that Deng Xiaoping and his fellow pragmatists inherited, shows the degree of control that was lost when reforms were introduced, and highlights the fiscal and monetary measures taken to reassert control. The paper also assesses the preliminary results of China's experiment with demand-management, and looks at some remaining problems that are not resolvable using monetary and fiscal tools.[1]

II. Direct Control—The Legacy of Mao

The Chinese Communists spent much of their first few years in power systematically dismantling the existing market-oriented system and replacing it with a planned economy modeled after that of the Soviet Union. Chinese economists hoped that central planning, aside from meeting their ideological needs, would enable them to assert direct control over aggregate demand[2] and avoid a recurrence of the economic disasters that had plagued the Kuomintang regime. Under that regime, sharp increases in consumer and investor spending—fueled by the printing of money to cover government spending—sparked a period of hyperinflation. To avoid this and all other cyclical fluctations in economic activity, a tightly controlled system was designed:

—Private enterprises were controlled, then turned into state-owned units.

—Land was redistributed, then collectivized in 1955-56, then communes formed in 1958.

—Prices were rigidly fixed (producer goods artificially high, consumer goods low) to promote industrial production and to prevent inflation.

—The currency (renminbi) was made inconvertible and the Ministry of Foreign Trade monopolized all imports and exports in order to insulate China from fluctuations in aggregate demand caused by international trade.

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[1] For other references on monetary and fiscal policy in CPEs see: Katherine Hsiao's *Money and Monetary Policy in Communist China*, New York: Columbia University Press, 1971, and Janos Kornai's *Economics of Shortage*, Vol. B, New York: North-Holland Publishing Company, 1980, esp. pp. 513-559.

[2] Aggregate demand refers to the total demand for goods and services produced in a given economy. In simple mathematical terms the equation most often used to express aggregate demand is:

$$Y = C + I + G + (X - M)$$

That is, aggregate demand for a country's total output (Y) can be broken into four component parts: consumption (C), investment (I), government expenditure (G), and net foreign trade (exports (X) minus imports (M)). For a market economy, C, I, and X and M, are commonly regarded as subject to the whims of private behavior; only G is under direct government control. For a tightly controlled planned economy, the state monopolizes virtually all industrial, commercial, and financial activity. Only C is considered to be largely outside the government's direct purview.

—Investment was incorporated into the planning process, with the state determining both the quantity and direction of most investment.

—The use of cash was restricted. Enterprises were forced to conduct most of their business through account transfers at state banks.

—Private consumption was regulated by wage and price controls, commodity rationing schemes and forced savings, and denial of consumer credit. Inflationary pressures showed up not as higher official prices, but as longer queues.

Although the economy recovered sharply and performed well during the early stages of Communist rule, major problems began to surface in the late 1950s and worsened throughout the following two decades. When Beijing abandoned market pricing and assumed the job of allocating resources, it introduced tremendous inefficiencies. Resources began to move where they were directed, not where they were needed. Political clout—not efficiency—determined the direction of flow. The government's emphasis on increasing output at all costs led firms to produce large quantities of unwanted, unusable goods. Maoist egalitarian principles prevented factory managers from rewarding quality work or firing unproductive labor. Because factories were required to pay the salaries of employees they laid off, few workers were let go under any circumstance. This "iron rice bowl"—guaranteed income and employment regardless of performance—has been one of the factors most often cited to explain the waste and inefficiency that has become inherent in the Chinese system. The leftist leadership under Mao viewed these economic problems as necessary, acceptable costs of ideological purity.

III. Economic Reforms: Efficiency at a Price

As Deng Xiaoping and his pragmatic followers consolidated their power, it became increasingly clear that their top priority would be to attack this inefficiency. Since 1978 they have introduced a series of "economic reforms," the basic thrust of which has been to decentralize decisionmaking authority, giving local government and enterprise managers greater autonomy, but also making them responsible for profits and losses. Rather than a comprehensive program carried out in stages, the reforms came as a series of groping experiments. Various proposals have been implemented, sometimes nationwide, sometimes only regionally. Where a specific reform was deemed effective, it was widely promoted. Where Beijing believed a reform created more problems, it was curbed.[3]

Although the reform program remains controversial, almost all sectors of the economy have already been affected:

—Agriculture. Over three-quarters of the land is now under effective control—though not legal ownership—of peasant households; 95 percent of all the households now follow the contract responsibility system.[4]

—Industry. Enterprises that formerly remitted all but a small share of their profits now retain a much larger share which, with limitations, they may use to pay bonuses, fund welfare programs, or invest in new facilities.

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[3] See Appendix A for an example of this groping process.

[4] Jingi Ribao, No. 4, 15 Dec. 1983, pp. 16–17, 28.

—Finance. Provincial governments now have greater discretion in spending locally generated revenues.

—Commerce. Free markets have reappeared with official blessing, and enterprises are permitted to sell some of their products outside the government-run commercial system.

—Banking. Loans are gradually replacing government grants as sources of fixed and working capital.

—Foreign Trade. Beijing has allowed some provincial and municipal-level organizations to conduct their own trade and has established four special economic zones with freedom to trade and accept foreign investment.[5]

—Private enterprise. Individuals may now establish small businesses and employ a few "helpers or apprentices."

LOSING CONTROL—REFORM'S WEAK LINK

By reintroducing competition and profit maximizing behavior—crushing the iron rice bowl—Beijing hoped to capture the efficiency of the marketplace while retaining the benefits of planning. In the agricultural sector, at least, the results have been satisfactory. For example, the combined effect of higher farm prices, increased individual incentives, and good weather boosted the value of agricultural output at an average annual rate of nearly 8 percent between 1979 and 1983.

TABLE 1.—ECONOMIC INDICATORS OF REFORM

[Average annual percentage increase]

	Prereform (1974-78)	Reform era (1979-83)
Gross value of agricultural output	4.4	7.9
Average unit yield[1]		
Grain	3.4	5.4
Cotton	0.4	8.7
Gross value of industrial output	8.7	7.9
National income	5.4	9.2
Retail sales	7.0	12.8
Exports	14.7	18.7

[1] Prereform data are averages for 1965-78 reform-era data are for 1978-82

With each step forward in reform, however, Beijing gave up another element of control over investment and foreign trade decisions and thus opened the door to potentially damaging fluctuations in aggregate demand. The problem was exacerbated by the indiscriminate payment of bonuses and increased procurement prices for agricultural products, both of which pumped cash into the household sector. The increased household income gave Beijing further cause for concern about rising consumer demand.

Evidence of Beijing's gradual diminution of control was most clearly reflected in investment trends. In 1978, nearly 85 percent of total investment in capital construction was funded through the state budget, but that share fell to less than 50 percent in 1982. The bulk of extrabudgetary investment came from local governments and enterprises using retained earnings or funds borrowed from banks. The initial 1982 plan called for a 10-percent reduction in total capital construction investment to 38 billion yuan. Yearend results showed instead a 25-percent increase to 55.6 billion yuan. More than 28 billion yuan came through extrabudgetary avenues, a 45-percent increase over 1981. The projects that local enterprises financed out of extrabudgetary investment siphoned off construction materials such as cement, steel, and glass that the government needed to carry out work on priority infrastructure projects. And once completed, many of these locally financed projects began competing for raw materials needed by larger, more efficient state-run enterprises.

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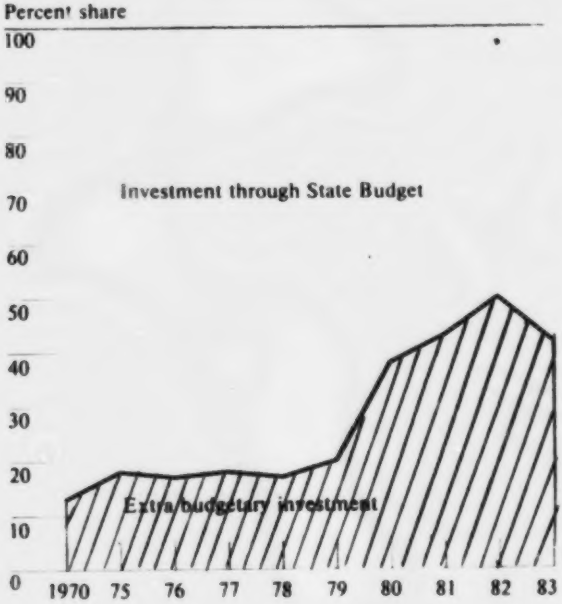
[5] Although Beijing has made several attempts over the past two years to recentralize trade, it still exerts much less control than it did in 1978.

Figure 1
China: Source of Investment in Capital Construction[a]



[a] Statistical Yearbook of China: 1983, p. 323.

Burgeoning budget deficits were further evidence of Beijing's problems with control. After registering small surpluses in 1977 and 1978, expenditures probably exceeded revenues by more than 20 billion yuan in 1979.[6] Although Beijing was able to reduce the size of succeeding deficits, the budget remained in the red a total of about 35 billion yuan between 1979 and 1983. Subsidies jumped an estimated 400 percent between 1978 and 1983 as Beijing boosted agricultural procurement prices (in an effort to improve rural living standards) while holding the line on retail food prices (to avoid cutting into urban consumption). According to Finance Minister Wang Bingqian, the government spent more than 140 billion yuan on price subsidies alone between 1979 and 1983, more than the total amount spent "providing jobs, raising wages, giving bonuses, and on building houses and urban public utilities".[7] By 1982, government subsidies outweighed capital construction as a share of the total budget.

TABLE 2.—CHINA: ADJUSTED BUDGET FIGURES[1]

[Billion yuan]

	Revenue	Expenditure	Balance
1977	87	84	3
1978	111	110	1
1978	125	145	-20
1980	130	145	-15
1981	140	145	-5
1982	143	150	-7
1983	146	154	-8

[1] Chinese figures found in SYB83 p. 445. Adjustments made according to statements by various Chinese officials on subsidies, and on domestic and foreign borrowings.

Revenue shortfalls increased the deficit. Enterprises, exercising their decisionmaking authority, found ways to avoid remitting profits to the government by overstating costs, giving across-the-board wage bonuses, and understating actual revenues. The drop in net profit remittances from state enterprises was unexpectedly sharp, from over 51 percent of total revenue in 1978, to only 26 percent in 1982, and roughly 30 percent last year.

In the foreign trade sector, Beijing saw its control wane because of reform. Provincial and municipal authorities engaged in open bidding wars for foreign business. Hard currency losses from the price competition were large, perhaps as much as a billion dollars in 1981 alone. Local traders ignored the Ministry of Foreign Trade's policy of avoiding duplicate purchases of expensive Western equipment. Instead, under the reforms, enterprises willingly laid out the foreign exchange necessary to acquire whatever equipment they could directly from the West. Hence, Beijing began to see inventories build in its own machine tool industry.

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[6] The budget figures given in this paper have been modified to meet standard Western accounting practices, and hence differ substantially from official Chinese statistics. Beijing includes domestic and foreign borrowing as revenue items while Western practice is to exclude them from budgetary calculations and consider them, instead, as means of financing a given deficit. On the expenditure side, Chinese statistics exclude payment of subsidies.

[7] Reported by Xinhua in Foreign Broadcast Information Service, "Daily Report: China," (hereafter FBIS), 29 Aug 84. pp. K1-2.

The unanticipated surge in aggregate demand put strong upward pressure on prices. Beijing generally allows official prices to rise only 2 to 3 percent per year to bolster China's claim of no inflation, but evidence suggests that inflationary pressures were often diverted to other areas and reflected in higher prices in non rationed markets, free markets, and black markets. For example, according to Cheng Ziping, Director of the State Price Bureau:

> The state commercial departments sell some hard-to-get consumer goods such as live fish, fresh shrimp, and tender vegetables at prices 15–30 percent higher than list ones, but lower than free market ones.[8]

Moreover, Guandong Province published figures that, though undoubtedly understating the level of inflation, probably give an accurate indication of price trends. The provincial paper reported that commodity prices rose at annual rates of 3, 8.5, 9.1, and 2.3 percent in 1979–1982, respectively.[9] The pressure prompted Beijing to issue "Provisional Regulations Governing Price Control" in August 1982. The regulations restated which product prices were still subject to strict state control and set the limits on fluctuations for most other prices. In May 1983 a circular reemphasized the main theme of price control, while in mid-1983 new sanctions were issued against unauthorized price increases.[10]

THE POLICY DEBATE

The mounting problems generated a fierce debate within the party during 1981–82 over the need for reform versus the need for tighter control over economic behavior. Party conservatives, led by Chen Yun,[11] were concerned that too much was being introduced too fast. They favored a more comprehensive planning process and somewhat less reliance on the market as means to reassert economic control. The more ardent reformers, on the other hand, advocated even faster change in order to create an institutional structure more conducive to market-oriented production. At times, this debate brought reform nearly to a standstill and gave Chinese economic policy a distinctive cyclical pattern of rapid advance and measured retrenchment.

Gradually, the reformers were able to convince the rest of the leadership that fiscal and monetary policies as practiced in the West offered improved control over macroeconomic behavior without cutting gains in productivity.

IV. SHORTAGE OF DEMAND-MANAGEMENT TOOLS

The use of demand-management tools posed two major obstacles for the reformers. In the first place, lack of experience meant Beijing has no idea how sensitive aggregate demand would be to various fiscal and monetary instruments. More importantly, most instruments commonly used for demand-management in market economies were not even available to Chinese planners in the early 1980's.

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[8] Cheng Ziping. Beijing Review, No. 35, 29 August 1983, pp. 19–35.

[9] Liao Chengye. "The Provinces Commodity Prices Obviously Tended Toward Stability in 1983," Guangdong Nanfang Ribao, 14 February 1984, in FBIS, 17 February 1984, p. P1.

[10] See Ma Hong's article in Renmin Ribao, (hereafter RMRB) 7 May 84.

[11] For insights into Chen's economic beliefs are Nicholas Lardy and Kenneth Lieberthal's, *Chen Yun's Strategy for Economic Development*, New York: M.E. Sharpe, Inc, 1983.

FISCAL POLICY

The principal weapons of discretionary fiscal policy are government expenditure and tax rates. In China, although the regime had direct control over government spending it was unaccustomed to using its control as a tool to mitigate unemployment and price pressures. Nor could Beijing rely on tax policy as even a long-term fiscal instrument. Existent sales, profit, and agricultural taxes has little meaning in an environment where the state confiscated all "after tax" profits. Changing tax rates would have had no impact on economic behavior.[12]

Beijing did have some success in the 1950s using government bonds to ease aggregate demand pressures. When China entered the Korean war in 1950, it issued 250 million yuan in war bonds to dampen consumer demand in the wake of sharp increases in government spending. "Economic contruction bonds"—2.5 billion yuan worth—served the same purpose between 1954 and 1958, offsetting a sharp increase in official investment spending. Although purchases were to be voluntary, in practice the party exerted considerable pressure to market the bonds. The fact that Chinese workers viewed bonds as just another tax was probably the major reason Beijing abandoned their use in 1958.

The traditional monetary tools available to market economies—direct control of money in circulation, manipulation of reserve requirements, or changing interest rates—were not available to Chinese policymakers.[13] The major objective of monetary policy was to supply the quantity of money that would satisfy the transactional demands arising from efforts to fulfill state plans. The volume of currency in circulation was, therefore, a reflection of the plan, and monetary policy was passive in the sense that Beijing did not alter it to offset fluctuations in aggregate demand. Policy decisions to increase wages, bonuses, or the purchase of products from the household sector—the only one that relied heavily on cash to carry out day-to-day transactions—all increased the amount of currency in circulation. Periodic campaigns to encourage savings reversed the flow.[14] All, however, were to a large degree determined at the time of the plan.

The rapid growth of currency in circulation at the outset of the reform movement—26 percent in 1979 and 29 percent in 1980—reflected changing government priorities rather than an expansive monetary policy. The decision to improve the lot of the Chinese consumer by increasing agricultural procurement prices and urban wages contributed to sizable budget deficits, which in those years were financed by the People's Bank of China. The substantial injections of currency into the economy were not fully offset by withdrawal of currency through sales of commodities by state commercial departments, inflows into savings deposits, service trade income, agricultural credit repayments, or income from taxation.

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[12] See articles by Wang Chuanlun, China Quarterly, No. 97, March 1984, pp. 53-67; and Li Gaisui, Caizheng (Finance), No. 5, 8 May 84, pp. 8-10.

[13] See Appendix B for a brief discussion of the relationship between money supply and foreign trade in China.

[14] Fluctuations in domestic savings or remittances from abroad were also capable of altering the amount of currency in circulation. The former has, periodically, been a major concern for policymakers. The latter has been of much less importance.

Figure 2
China: Currency Flows

Currency Put Into Circulation
- *Wages, bonuses, and other payment to workers*
- *Withdrawal of savings*
- *State purchases of agricultural and sideline products*
- *Credit to the rural sector*
- *State purchases of industrial and mining goods*
- *Miscellaneous cash business*
- *Overseas remittances*

Currency Withdrawn From Circulation
- *Money received from state and cooperative sales*
- *Savings deposits*
- *Taxes on individuals*
- *Service trade income*
- *Loan repayments*
- *Bond purchases*

Unclassified

Nor were banking authorities able to control credit expansion. During the Cultural Revolution (1966–76), China's banking system was reduced to little more than a cashier/accountant for the Ministry of Finance. Budgetary allocations were deposited in state banks and funds drawn as required. Even when credits demanded were above planned levels, it was generally true that well-explained applications for credit, short- or long-term, were always accepted. The only major check on the amount an enterprise could borrow was the stigma attached to not meeting the exact terms of the plan.

Interest rates, like most official prices in China, went almost unchanged from 1965 to 1978. Even if they had fluctuated with world rates, however, their impact on borrowing—and hence on aggregate demand—would probably have been negligible. The restrictive power of rising interest rates stems from the additional costs that these rates impose on borrowing enterprises. In China, the influence of subsidies, easy access to credit, and the central government's emphasis on output almost regardless of cost all ensured that—in a financial sense—true investment failure was rare.[15] Higher interest rates also did little to encourage industrial savings. Chinese firms generally believed it was more important to expand capacity, even at a lower rate of return, than to earn interest on savings deposits.

Wage and price controls played an important role in regulating aggregate demand during the past two decades. These controls were directed at the rural and urban household sectors. One of Beijing's major concerns has been that a sudden increase in consumer spending would drive domestic prices upward. By holding agricultural prices relatively constant from the 1950s to the late 1970s, Beijing prevented surges in the amount of currency circulating in rural sectors and, hence, was able to curb excess demand. Wage controls did the same in urban areas. The controls were a major factor in holding the line against inflation. When Beijing opted in 1979 and 1980 to relax wage and price controls in an effort to improve consumer welfare, it gave up, temporarily, one of its most effective demand-management tools.

V. EXPERIMENTING WITH NEW FISCAL PROGRAMS

At the outset of the reform movement, Beijing attempted to control aggregate demand using the only powerful fiscal tool in its arsenal—government spending. Government investment in capital construction was held flat in 1979 and then slashed 17 percent in 1980 and 28 percent the following year in an attempt to curb mounting inflationary pressure. Defense expenditures—after rising sharply in 1979 to finance the war with Vietnam—were also cut in 1980 and 1981. Beijing also tried moral suasion—threats against disobedient enterprises—to curb extrabudgetary expenditure by domestic firms. Government threats proved fairly successful in 1979, probably because local enterprises were unsure how hard Beijing might respond to disobedience. But when it became clear that the government was anxious to move ahead with reform and would not clamp down, extrabudgetary investment doubled to about 20 billion yuan in 1980 and 1981, then hit 28 billion yuan in 1982.

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[15] An example of the difficulty involved in forcing plants into bankruptcy was provided by Jingji Wenti (Problems in Economics) No. 2, 25 February 1984. According to the publication, five electronic components plants set up in a certain county in Shanxi were all considered operational despite the fact that in more than 20 years two of them never met quota and the other three "have been completely idle".

Beijing also used control over the foreign trade sector to reduce potential capital outlays and hence lessen pressure on aggregate demand. In 1979 and again in 1981, Chinese officials refused to approve billions of dollars worth of turn-key plant contracts that its foreign trade corporations had signed with Western firms. Part of the motivation for the 1979 suspensions was to ease mounting balance-of-payments problems, but in both cases Beijing was also attempting to reduce domestic budget outlays. For each dollar spent on imported equipment, Beijing claimed that it had to lay out approximately four yuan for infrastructure projects, wages, and other local costs. By refusing to honor the import contracts immediately, Beijing probably postponed capital expenditures of more than 10 billion yuan.

The attempt to relieve pressure by cutting back government investment proved less than totally effective. In the first place, reductions were offset by other government outlays. Subsidies alone probably rose enough to more than offset the 21.2-billion-yuan decline in government spending for capital construction between 1979 and 1982.[16] Furthermore, by withdrawing resources from much-needed infrastructure projects, government investment cutbacks may have adversely affected China's future growth potential. The share of total expenditure allocated to key projects dropped from 42 percent in 1978 to 30 percent in 1982.

Recognizing the deficiencies in its initial attempts at demand-management, Beijing tried other fiscal measures. In 1981, the practice of issuing government bonds was resumed. Nearly 5 billion yuan in treasury bonds were sold to state and collectively owned units almost entirely on an involuntary basis. As they had in the 1950s, the bonds once again proved useful fiscal tools for slowing aggregate demand. With the funds siphoned from enterprises, the government covered a portion of its ongoing budget deficits without resorting to inflationary printing of money. At the same time, the bonds crowded out extrabudgetary investment that almost certainly would have occurred had the enterprises been allowed to retain their full profits. More recently, Beijing also used the bonds to help curb increasing consumer demand. About half of the 4 billion yuan in bonds issued in 1982 and again in 1983 went to individuals and half to organizations. The former, purchase of which is "voluntary", carry an 8 percent annual interest rate, the latter only 4 percent.

By far the most difficult fiscal reform attempted was replacing the system of profit remittances with a system of profit taxation. The new program was designed to raise government revenue, to put more pressure on losing enterprises by ending automatic subsidies, and to encourage other enterprises to earn higher profits on the understanding that these would be shared with the tax authorities rather than confiscated. An eight-tier tax structure was introduced nationwide in June 1983. Small enterprises with annual income of less than 300 yuan, were taxed at 7 percent while large and medium-sized state enterprises (those with annual income in excess of 80,000 yuan) fell into the highest bracket and were taxed at 55 percent of profit. A special "adjustment tax" was also levied to tax away special advantages that certain enterprises enjoyed as a result of irrational prices, new technology, location advantages, and so on. Any profit the state deemed as a windfall—not directly attributable to efficient operation—was subjected to the higher tax.

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[16] A 7 July 84 Wen Wei Po article by Li Kehua implies an increase in total subsidies between 1979 and 1981 of 25.4 billion yuan.

Subsequently, the state decided to increase its share of the pie by introducing other taxes. In October 1983, Beijing levied a 10-percent tax on extrabudgetary capital construction expenditures. The tax is intended to discourage unwanted investment and, at the same time, to help finance the central government's major infrastructure projects. Other taxes being tried experimentally include taxes on fixed assets and circulating capital, and on value added in production. Surcharges have been levied against inventories to discourage the production of unwanted merchandise. A user tax on crude oil was introduced in July 1982 to encourage enterprises to burn coal. Evidence suggests that the combined affect of all these taxes is a marginal tax rate amounting to 80-85 percent of state enterprise profits.[17]

Earlier this month (October 1984) Beijing moved into the so-called "second-stage" of tax reform where a collection of eleven taxes will gradually eliminate the need for remitting any profits to the state. The taxes have been designed to enable the government to restore equilibrium between supply and demand in various product markets and to enhance its control over aggregate demand. Although the program is barely underway, the Chinese have provided the following rough notion concerning the seven taxes that are now being applied:[18]

—Product Tax. Similar to one levied in the early 1950s this tax will replace the industrial and commercial tax and allow Beijing to place differing degrees of emphasis on various products. By altering tax rates the government can, in effect, experiment with price reform.

—Value-Added Tax. Levied on sales revenue to encourage enterprise specialization. At present there is a growing tendency for each firm to produce everything needed in the production process—a trend Beijing calls trying to become "large and complete".

—Salt Tax. Imposed to equalize the profit ratio for salt producers. This rate currently varies markedly bacause of location and quality of salt reserves.

—Sales/Business Tax. Applied mainly to commercial activities in an effort to "dredge commodity circulation channels". Low rates will probably be applied to commercial functions that Beijing deems most desirable.

—Resource Tax. Levied on the mining of natural resources in an effort to remove profitability differences caused by geographic peculiarities. At present only coal, natural gas, and crude oil are taxed.

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[17] See tax article by Li Gaisui in Caizheng (Finance), No. 58, May 1984, pp. 8-10.

[18] See articles in Jingji Wenti Tansuo (Inquiry Into Economic Problems) translated by JPRS-CEA-84-076, 18 September 1984, pp. 50-55; and FBIS, 9 October 1984, pp. K15-K22.

—Income Tax. Similar to the adjustment tax now in effect, it will take 55 percent of the "after-tax" profits of large- and medium-sized enterprises. The tax will be progressive for small firms.

—Regulative Tax. Probably enables Beijing to appropriate any windfall profits not accounted for in one of the other taxes.

Four other taxes—housing, land use, vehicle use, and urban maintenance and construction—will reportedly by put into effect when "necessary conditions arise".

Revenue collection has also been strengthened. An Office of General Financial Inspection was established in mid-19[illegible] to audit units nationwide and crack down on tax fraud. By early 1984, more than 190,000 auditors had been mobilized to spot-check a third of the nation's enterprises and establishments. Violations amounting to 3.5 billion yuan were discovered, 1.9 billion of which was owed to the state.[19]

Although still in its early stages, the tax reform program is already creating problems. In an effort to increase revenues, the steepest adjustment tax has been applied to the most profitable enterprises—a practice Beijing refers to as "whipping the fast ox." As a result, some firms now retain less than 5 percent of total profits, making it difficult for them to award bonuses or to acquire needed technology. The firms probably benefiting most from the new system are the few which remain outside it.

VI. MAKING MONETARY POLICY AN OPTION

BANKING

Perhaps the most convincing evidence of China's willingness to experiment with market oriented demand-management tools has been its reform of the banking system. Although use of fiscal tools required innovative policy moves, monetary reform involved major institutional rebuilding. Over the past four years, Beijing has been setting up a network of commercial and industrial banks to relieve the People's Bank of China (PBOC) of the burden of exercising financial supervision over all public enterprises:

—On 1 January 1984, all commercial banking responsibilities were taken from the PBOC, which is now to function solely as a central bank, formulating and carrying out overall monetary policy.

—Commercial banking functions previously carried out by the PBOC have been delegated to the newly formed Industrial and Commercial Bank.

—The Agricultural Bank—formally reestablished in February 1979 after a 10-year hiatus—now serves as the main channel for both state investment and credits to agriculture as well as for collection of revenue in the countryside.

—The Construction Bank has been placed under joint supervision of the Ministry of Finance and PBOC, and is charged with supervising construction investment.

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[19] Xinhua in FBIS, 30 May 1984, pp. K10-11.

—A Central Bank Council—made up of executives from all the banks—has recently been formed to discuss important national financial policy questions.

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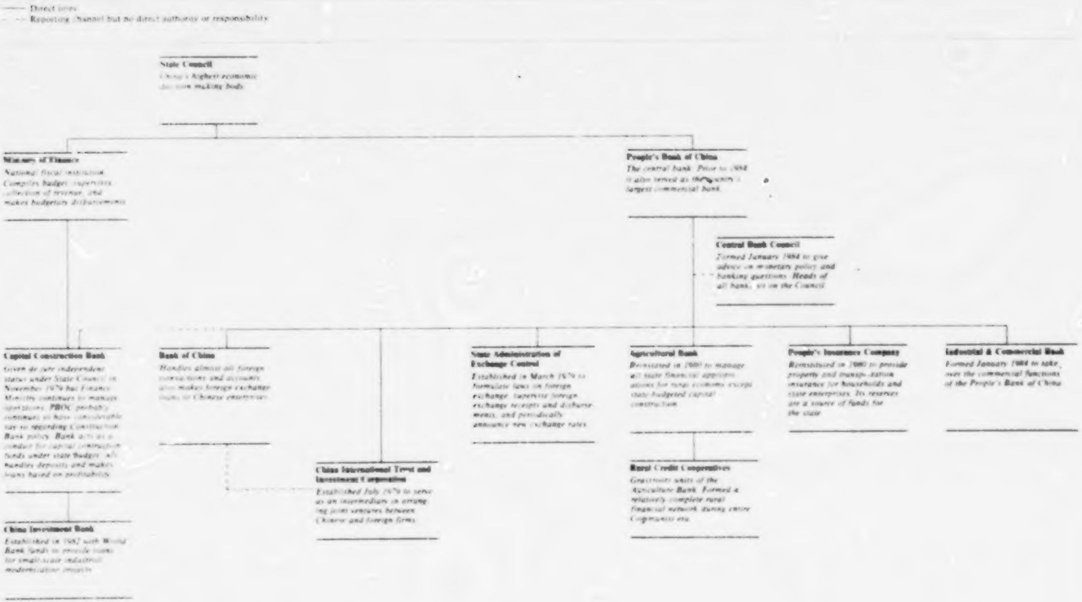
Figure 3
China's Banking System



—— Direct lines
- - - Reporting channel but no direct authority or responsibility

State Council
China's highest economic decision making body

Ministry of Finance
National fiscal institution. Compiles budget, supervises collection of revenue, and makes budgetary disbursements

People's Bank of China
The central bank. Prior to 1984 it also served as the country's largest commercial bank

Central Bank Council
Formed January 1984 to give advice on monetary policy and banking questions. Heads of all banks sit on the Council

Capital Construction Bank
Given de jure independent status under State Council in November 1979 but Finance Ministry continues to manage operations. PBOC probably continues to have considerable say in regarding Construction Bank policy. Bank acts as a conduit for capital construction funds under state budget; also handles deposits and makes loans based on profitability

China Investment Bank
Established in 1982 with World Bank funds to provide loans for small-scale industrial modernization projects

Bank of China
Handles almost all foreign transactions and accounts; also makes foreign exchange loans to Chinese enterprises

China International Trust and Investment Corporation
Established July 1979 to serve as an intermediary in arranging joint ventures between Chinese and foreign firms

State Administration of Exchange Control
Established in March 1979 to formulate laws on foreign exchange, supervise foreign exchange receipts and disbursements, and periodically announce new exchange rates

Agricultural Bank
Reinstated in 1979 to manage all state financial appropriations for rural economy except state-budgeted capital construction

Rural Credit Cooperatives
Grassroots units of the Agriculture Bank. Formed a relatively complete rural financial network during entire Communist era.

People's Insurance Company
Reconstituted in 1980 to provide property and transportation insurance for households and state enterprises. Its reserves are a source of funds for the state

Industrial & Commercial Bank
Formed January 1984 to take over the commercial functions of the People's Bank of China

One of the major long-term goals of banking reform is to set up institutions that eventually will be capable of pursuing an active monetary policy. Monetary authorities under such a system could cut back lending when aggregate demand was considered too strong and make additional loans when demand was weak. The monetary authority itself would determine the course that aggregate demand would take. At present, banks are forced to lend to almost every enterprise that demonstrates a need for funds to meet planned production. In the future Beijing wants the banking system to assist in the drive for efficiency by making loans on the basis of profitability.

INTEREST RATES

Beijing has also attempted to make greater use of interest rates to influence microeconomic decisionmaking. To encourage savings and reduce the amount of cash in the hands of consumers, interest rates paid on deposits have been raised three times since 1978. New types of deposits have been created, broadening the range of financial assets available. In 1982, enterprises and organizations were for the first time permitted to hold time deposits, which earn higher interest. Perhaps the most important adjustment, however, was the general increase in interest rates on loans, implemented in January 1982. The standard rate on circulating capital loans was raised by two percentage points. Certain other loans interest rates were raised even more.

These adjustments have made the structure of interest rates more rational and hence are beginning to make Chinese borrowers and lenders more aware of the true cost of capital. A journal published by Sichuan University, for example, recently implied that commercial enterprises are finally becoming aware of the cost of holding large inventories. The journal complained that commercial firms attempted to shift the responsibility for storing inventories onto producers after "the banks' interest rates rose from 4.2 percent to 6 percent."[20]

Despite these major changes, the PBOC continues to have little independent control over economic activity. Branch banks—bowing to pressures from local authorities—still tend to supply credit according to enterprise needs, even when those needs exceed plan. Higher interest rates, imposed on borrowing for extrabudgetary investment, are beginning to influence demand, but the central bank's ability to control excess expenditure is still largely indirect. When a local unit's demand for funds becomes excessive, the bank, rather than refusing to disburse the loan, attempts to correct the situation by notifying the government organizations directly responsible for the units where the deviation occurs. The reforms have, however, given the monetary authorities more influence over the mobilization of savings. Households have apparently responded well to both higher interest rates and the improved service offered by local banks.

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[20] Sichuan Daxue Xuebao No. 1, January 1984 pp. 19-23 translated in Joint Publications Research Service, (hereafter JPRS), China: Economic Report, JPRS-CEA-84-075, 10 September 1984, p. 43.

VII. Performance and Prospects

The experiments with fiscal and monetary policies deserve at least partial credit for curbing aggregate demand pressures built up between 1979 and 1981. After increases in the supply of currency in 1979 and 1980 that exceeded the rise in retail sales by large margins there was a return to near-balance in 1981 and 1982. Currency in circulation rose only 14.5 percent in 1981 and 10.9 percent in 1982 while retail sales showed gains of 9.8 and 9.4 percent respectively. Reduced government spending and the sale of treasury bonds enabled Beijing to avoid monetizing large amounts of domestic debt. The budget deficits for the two years, though large by Chinese standards at about 5 billion yuan in 1981 and 7 billion in 1982, remained well below the 1979 and 1980 deficits of 20 billion yuan and 15 billion yuan, respectively. Tighter control of wages and bonuses, plus, in 1982, stable procurement prices for agricultural goods, were the most important contributors on the monetary side to reducing aggregate demand pressure.

The evidence for 1983 suggests that although Beijing continued to see some success in its demand-management efforts, problems persisted. China's new tax and banking policies, combined with government exhortation, finally affected enterprise investment; extrabudgetary investment in capital construction fell 13 percent from the record 1982 level. But the budget deficit widened in 1983 to probably about 10 billion yuan. And because the People's Bank financed the increase, the amount of currency in circulation showed a sharp 21-percent rise. The rise in currency in circulation was the first economic problem that state councillor Song Ping highlighted in his address in May before the National People's Congress (NPC).

Beijing remains concerned that, as the reforms proceed, aggregate demand will become increasingly difficult to control. Nevertheless, Chinese leaders reemphasized their commitment to reform at the NPC. And the upcoming Party Plenum, (scheduled for mid-October, 1984) will release a 16,000 character "important document on economic reform" containing even more major changes.[21] Hence, fiscal and monetary tools will become increasingly important supplements to China's combined planned/market economy over the next few years.

On the fiscal side, the government is unlikely to return to the cutbacks in its own investment program that were imposed in 1980 and 1981. Recognition of the importance of the key infrastructure projects to economic development ensures increases in government expenditure over the next few years. The share of total investment going to the energy and transportation sectors jumped from 28 percent in 1982 to 38 percent last year, and will probably exceed 40 percent in 1984. Large domestic budget deficits—similar to those of 1979 and 1980—will be avoided by boosting tax revenues through tough enforcement of existing policies first, but also through tax hikes if necessary. The government appears prepared, however, to continue to operate somewhat in the red, at least for the next few years. Because Beijing considers inflows from treasury bonds and from foreign borrowing as part of revenue rather than debt, it is also probable that these borrowing practices will continue.

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[21] See interview with Hu Yaobang in FBIS, 4 October 1984, pp. G1-5.

The most obvious areas for continued fiscal experimentation relate to tax policy. The concept of making individual enterprises accountable for their profits and losses is central to the reform movement. Substituting taxes for profit remittances is the only way to harmonize the enterprises' needs for autonomy and the government's need for funds to finance public projects. As Beijing's fiscal requirements and industrial priorities change over the next few years, its tax structure will probably also go through several major alterations. Beijing will use the tax structure to penalize industries it deems weak or undersirable and to reward those it favors.

In many ways China's economic system is well suited for monetary policy. In Western economies a multitude of constantly changing financial instruments make control of the money supply difficult, but Beijing has relatively few instruments for borrowing or lending. Then too, while China's banking system is less homogeneous than it was five years ago, it retains many of the characteristics of a monobank. The monetary authority should be able to exert significant control over the entire banking system. As a result, Beijing will probably move ahead with monetary reform.

The banking system will probably play a much larger role in financing future investment. Interest rates will probably be raised again and preferential rates may be offered for priority sectors of the economy. It is not clear yet what degree of autonomy may be wielded by the new Industrial and Commercial Bank, but over the short term at least, it will continue to function under the close supervision of the PBOC.

Although the application of monetary and fiscal policy has given Beijing a modicum of control over the economy that was seriously lacking in 1979-81, the government is clearly looking for more. China's leadership took significant risks in scrapping the system built up over the past 30 years. Several members of the party's reform wing—such as General Secretary Hu Yaobang, Premier Zhao Ziyang, and Vice Premier Wan Li—have staked their careers on the successful resolution of China's economic problems. Clearly they are expecting the entire experiment to create a more vibrant, efficient economy. However, much of the remaining waste and inefficiency stem from China's irrational price system.

Macroeconomic demand-management tools are particularly ill-suited for dealing with relative price problems. Restrictive fiscal and monetary policies operate by forcing firms in all sectors to scale back operations. The most efficient firms maintain reasonable profits even in a tight market, while the least profitable enterprises suffer or are driven out of business. In China, however, profits bear no relationship to efficiency or demand. Firms producing goods whose prices have been set high may show substantial profits despite inefficient operations even in a market depressed by tight fiscal or monetary policies. (In some cases these firms even produce goods that the government has extreme difficulty marketing, either because of low quality or lack of demand.) Conversely, an efficient firm that uses raw materials priced artificially high may suffer losses in a tight market. Under these conditions, restrictive fiscal or monetary policy could seriously damage China's best-run industries. Moreover, the incentive for an inefficient firm to streamline operations is low, and neither the reform nor demand-management tools offer much hope for change.

Recognizing these weaknesses, China's leading economists have had some success pushing the government toward price reform. Last year, prices on more than 500 minor consumer items were allowed to vary depending on local conditions, and peasants were given increasing latitude to negotiate prices for their surplus agricultural and sideline products. Moreover, there are preliminary indications that fairly major price reforms may come out of this month's party plenary session. Nevertheless, the question of major price reform probably remains among the most contentious economic issues within China's top echelons.

The long-term success of monetary and fiscal policy—and for that matter the entire economic reform program—hinges on price reform. If, over the next few years, Beijing is able to couple its economic experiment with major price reform, sizable gains are possible. If Beijing continues to resist major price adjustment, however, waste, inefficiency, and economic crime will remain. Since the reform policies remain controversial, and conservative critics tend to attack shortcomings quickly, the longer major economic problems persist, the more frustrated reforms will become. Failure to come to grips with price reform will, at a minimum, perpetuate the cycle of reform and retrenchment and could percipitate the discarding of some economic reforms in favor of more direct control.[22]

Appendix A: The Bonus System—Trial and Error Reform

The method by which the bonus system was implemented serves as a useful example of the groping process through which the reforms have passed. In 1979, in an effort to spur productivity, Beijing gave enterprise managers authority to distribute bonuses to their workforce. Instead of using the bonus system to reward meritorious performance and enhance incentives, however, managers—many of whom achieved their positions during the Cultural Revolution as a result of their political orthodoxy—distributed bonuses in egalitarian fashion, across the board. Even after some factories were closed down, their unemployed workers continued to draw their full wages and bonuses.

The result of this misuse of bonuses was constant or even declining productivity and sharp upward pressure on prices. Beijing responded in 1982 by curbing the amount of retained earnings available for bonuses and by issuing order that effectively capped bonus payments. Once factories had paid out the maximum under the government-imposed ceiling, however, productivity reportedly fell almost to zero, forcing yet another change in bonus policy. In April this year (1984) the State Council issued a "Circular on Relevant Questions Concerning Bonuses Issued by State Enterprises." Rather than setting upper limits on bonuses, Beijing now applies a progressive tax on these payments. There is no penalty for a year-end bonus amounting to less than 2½ months wages, but enterprises awarding bonuses larger than the equivalent of six months' wages are now required to pay four times that amount in taxes.

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[22] The historic plenum document approved by the Central Committee on October 20, 1984, (after this paper was in final form) has as one of its major goals the implementation of a "rational price system". That Beijing has recognized the need for such move is encouraging indeed. One can only wish them success in the long, uphill battle to put such a program into effect.

APPENDIX B: MONETARY POLICY AND INTERNATIONAL TRADE

The absence of an independent monetary policy has not been as problematic for China as it might have been for an economy more fully integrated into the international economic order. Fixed domestic prices and the inconvertible currency have at least partially severed the link that exists between trade and money supply in a market economy. Thus, the $16 billion trade surplus that China has run over the past three years has shown few of the inflationary pressures that would have been present had such a massive injection of currency occurred elsewhere.

Several factors account for the difference. Local exporters in China view sales abroad as a means of acquiring hard currency which can then be used to purchase Western goods. There is almost no incentive to convert to local currency—even if such conversion was freely allowed—and, hence, no direct pressure on domestic demand. Conversely, since local traders desirous of acquiring goods abroad are usually required to draw on their own stores of foreign exchange, imports often do not act as a direct drain on local currency.

Even when state trading corporations are involved the link between money supply and the trade balance is obscured. For example, when rising oil prices boosted China's export earnings by $400 million in 1974 and an additional $1.3 billion in 1980, the domestic money supply—and internal prices—were hardly affected. Beijing continued to procure its oil from domestic producers at 1973 prices.

The burgeoning trade surplus has, however had an indirect effect on the money supply through the domestic budget. China's currency is overvalued, meaning that exports generally require government subsidization while imports are net revenue earners. With exports growing at an 8 percent annual clip since 1980, and imports actually declining, subsidies to foreign trade have not probably also been growing rapidly. The resulting budget deficits have been financed, at least in part, via the printing press.

MAKING ECONOMIC POLICY: THE INFLUENCE OF ECONOMISTS

By Nina Halpern[1]

CONTENTS

		Page
I.	Introduction	132
II.	Assessing Influence	133
III.	Background	135
IV.	1979–Mid-1980: Expansion in Participation	137
V.	Fall 1980: Institutionalization of Participation	140
VI.	Weaknesses of the Discipline	144
VII.	Conclusion	146

I. INTRODUCTION[2]

In the years since Deng Xiaoping has returned to the national scene and become a dominant force in shaping Chinese politics, China's top leaders have frequently reiterated the need to listen to the advice of experts in making economic policy. The policy process under Mao has been attacked for its "idealism" and failure to abide by "objective economic laws"; as an important corrective, the leadership now promotes attention to specialists' advice when making policy. As the *Beijing Review* stated in explaining why the Chinese economy encountered major setbacks after the early 1950s, "Apart from the 'left thinking' which was a main cause, the negligence of specialists' opinions was also a factor. Since the Third Plenary Session of the Eleventh Party Central Committee held in December 1978, attention has been paid to enlisting the help of specialists who are now playing an ever greater role in socialist construction."[3]

This article will attempt to evaluate that claim by investigating whether specialists' influence in economic policymaking has indeed increased since 1978. Specifically, it will focus on the role of the economists, certainly not the only important specialists in economic policy-making, but obviously the most central. Chinese economists, meaning here those who are employed to do research on or teach about the economy, in many ways bear little resemblance to their Western counterparts.[4] But despite their limitations (which will be discussed below) they are the individuals whose occupation requires them to focus their thinking solely on the economy, and to attempt to do so in a systematic fashion. Their advice ought, therefore, to have some potential for improving China's economic policymaking.

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[1] Department of Government, Dartmouth College.

[2] I would like to thank Robert Dernberger and Melanie Manion for helpful suggestions on an earlier draft.

[3] *Beijing Review* #39, 1981, p. 6.

[4] For a discussion of the differences between Western and Chinese economists see Robert F. Dernberger, "The Status of Economics in China," U.S. Congress Joint Economic Committee, *China Under the Four Modernizations*, Vol. I, Washington, Government Printing Office, 1982, pp. 569–577.

Admitting the numerous methodological difficulties in assessing the influence of economists on policy, the article nevertheless concludes that changes since 1978 do appear to have increased the role of this group and thus to have contributed to a sounder economic policy process. Factors which should contribute to enhanced influence of economists are a top leadership which is increasingly sensitive to economic considerations and thus more receptive to economists' advice; economists' institutionalized participation in the policy process and increased access to decision-makers; a much changed political climate which has left economists freer to express their opinions without fear of subsequent punishment; and better access to data and improvements in the economic discipline. The major barrier to increased influence is the limitations of that last development: i.e., the fact that Chinese economists lack many of the most powerful tools of Western economics, and are still not able to offer practical suggestions on how to cope with the most pressing policy problems facing China today.

II. ASSESSING INFLUENCE

The analyst encounters numerous difficulties in attempting to establish the influence of economists on policy. This is true even for a political system like the U.S., where the mechanics of the policy process are relatively open to view; for China, where most decision-making takes place secretly, it is an even more difficult task. The problem is partly lack of information, partly the nature of the policy process, and partly one of expectations.

To begin with the last two, where do economists fit into the policy process, and thus what type of influence should we *expect* them to have? First, economists are only one set of participants (and indeed, one which often has internal disagreements); the policy-maker choosing between alternatives also has to bear in mind the preferences of other top leaders, advice emanating from the bureaucracy (which has its own kind of expertise), the likely impact on mass opinion, and numerous other pressures.[5] This is no less true in China than it is in the U.S. Second, in the U.S. and probably also in China, policies rarely result from instantaneous acceptance of particular proposals put forward by any individual or group; rather, new ideas float around in what one scholar has recently dubbed a "policy primeval soup," and in the process are often revised and combined with each other, or disappear only to achieve acceptance long afterwards in a new situation or political mood.[6] Discovering whether a particular policy or proposal origi-

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[5] The assessment of Murray Wiedenbaum, chairman of President Reagan's Council of Economic Advisors from 1981-82, is that "few if any decisions on government policy—be they labeled economic or social or foreign affairs—are made solely or even primarily on the basis of economic analysis or information from economists." See his *An Economist in Government*, Center for the Study of American Business, Washington University, St. Louis, Contemporary Issues Series #5, 1983, p. 2.

[6] John W. Kingdon, *Agendas, Alternatives, and Public Policies*, Boston, Little Brown and Company, 1984, Chapter Six.

nated with an economist can thus be difficult, if not impossible. Finally, when economists do have influence, it is probably more often by *preventing* policies from being adopted than by actually supplying proposals for new ones. American economists who have served as advisors to the President rarely point to generation of new policies as their primary function; far more often they speak of operating a "damage limitation mechanism," i.e., opposing economically harmful ideas put forward by special interests, segments of the bureaucracy, or by the President himself so that these policies never see the light of day.[7]

In sum, economists are one group among many participants in the policy process, and in general we should expect that they will influence policy in some marginal or long-range fashion, often by eliminating certain alternatives from consideration. These types of influence are not easy to identify. Our lack of information about the decision-making process further exacerbates the problem. With full knowledge of the actions of the different participants one might be able to say when an economist *prevents* a policy from being adopted; knowing only the final outcome, this type of influence becomes invisible. Similarly, when an economist who is close to a top leader puts forward a proposal which later becomes policy, one has no way to know if his proposal has been adopted, or if he is simply floating the idea for the policy-maker so the latter can assess the political reaction.

This formidable list of obstacles makes it virtually impossible to measure economists' influence directly. Nevertheless, one can still make a judgment about whether or not economists are likely to have an influence on policy outcomes. Surveying the literature on economists and policy-making in the U.S., one finds widespread agreement on the factors which tend to increase economists' impact on the policy process.[8] These factors include the following:

(1) Participation. To make the obvious point, economists cannot have influence unless they are able to make their views known. If they are, they will probably eventually influence decision-makers in some fashion, even if it is very indirectly and not always in a manner subject to observation.

(2) Decision-makers who recognize the importance of economic criteria and are therefore predisposed to accept economists' advice.

(3) Economists' institutionalized location within the government structure and proximity to decision-makers. There is general agreement that a semi-permanent and official status within the policy-making edifice greatly increases the chances of economists' voices being heard and taken into account; in

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[7] Weidenbaum, op. cit., pp. 7 and 11. See also Arthur M. Okun, *The Political Economy of Prosperity*, Washington, D.C., The Brookings Institution, 1970, pp. 7-9. Other important roles which they emphasize include providing information, translating economic concepts into terms easily understood by the President, floating ideas, and helping to sell the Presidents' program to Congress or the public.

[8] This paragraph draws particularly on Weidenbaum, op. cit.; Walter Heller, *New Dimensions in Political Economy*, Cambridge, Harvard University Press, 1966, pp. 29-36; Gardner Ackley, "Providing Economic Advice to Government," in Joseph A. Pechman and N.J. Simler, eds., *Economics in the Public Service*, New York, W.W. Norton and Co., 1982, pp. 200-234; James Tobin, "Academic Economists in Washington," in Idem., *National Economic Policy*, New Haven, Yale University Press, 1966, pp. 201-206; George P. Schultz, "Reflections on Political Economy," *Challenge*, March-April 1974, pp. 6-11.

part by providing access to necessary background information and increased political savvy, in part because of the additional status which it confers. Influence also rises with proximity; the more regularly the economists' views are presented to the decision-maker, the more likely that influence will result.

(4) A successful personal relationship between decision-maker and economist. Factors which contribute to such a relationship include the economist's sensitivity to the decision-maker's values and philosophy when providing advice, as well as an ability to speak in terms which are meaningful to him; the decision-maker's ability to trust the economist not to reveal publicly disagreements or ideas under consideration (unless the decision-maker so chooses); and, of course, human chemistry.

(5) Economists' ability to provide analysis which illuminates the likely consequences of alternative polices and to offer advice which is practical, both economically and politically.

The remainder of this article will ask whether these factors have become more operational in post-Mao China.

III. BACKGROUND

At the end of the Cultural Revolution (1966–1976) few economic research or teaching institutions were operating. After 1966, the Institute of Economics at the Chinese Academy of Sciences, the economic research institutes attached to the ministries, and most of the nation's financial-economic colleges were disbanded or ceased work; the economists were sent to the countryside or to "May 7" cadre schools for reeducation and labor. Although economists began to come back to the cities after 1972, they generally stayed at home and through 1976 were basically unable to work. The Chinese discipline of economics effectively took a ten year sabbatical.

After 1976, the profession returned to life with a new energy. The ministries restored their research institutes, and an independent Chinese Academy of Social Sciences (CASS) was set up which eventually established seven institutes conducting different types of economic research.[9] Professional economics associations returned in far greater numbers than before the Cultural Revolution; by early 1981 when a Federation of Economics Associations was set up as an umbrella organization, there were more than 225.[10] Many branches of economics which had been slighted or ignored in the past—such as technological, commercial, and environmental economics—were now taken up, and professional associations, journals, and even some institutes established to promote their study. By the end of 1978 the "economic research infrastructure" had been restored and further developed.[11]

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[9] The seven institutes study, respectively, political economy [illegible] history [illegible] agriculture, finance and trade, capital construction, world eco[illegible] techn[illegible] and quantitative economics.

[10] *Renmin ribao* (People's daily), 15 October 1981, [illegible]

[11] For surveys of events in the economics profession [illegible] ren Lin, "The Reinstatement of Economics in China Today," *China Qu*[illegible] 981) pp. [illegible]-48 (the term "economic research infrastructure" is his); and Soren Clause[illegible] [illegible]mic Debates After Mao and the Crisis of Official Marxism," in Stephen Feuchtwang [illegible] Hussain, eds., *The Chinese Economic Reforms*, New York, St. Martin's Press, 19[illegible], pp [illegible]

[illegible] AVAILABLE

In 1977 economists by and large devoted their energies to refuting "fallacies of the 'gang of four' " and restoring the good name of such concepts as profits, bonuses, and commodities, which had been much maligned during the Cultural Revolution. Beginning in early 1978 meetings began to take place around the country to map out long-term plans for economic research, and economists' discussions began to move beyond simply refuting the distortions of the past decade.

In July, Hu Qiaomu gave a major speech to the State Council, in which he argued that economic policy must observe "objective economic laws" and that economists must help the government to achieve this, called for a number of policy changes, and stated that economic reform was essential and that even capitalist countries offered useful lessons on how to carry it out.[12] These general notions received authoritative approval at the Party's Third Plenum in December, and in early 1979 economists responded to the new signals with an outpouring of articles on China's need to reform her economic system. These articles incorporated some genuine debate over the proper direction of reform, including such questions as how great an introduction of market forces was appropriate, and what type of planning should be adopted.

By the beginning of 1979, then, economists' discussions had become considerably freer and their policy suggestions were expressed in academic journals, newspapers, and at conferences. At this point, however, they lacked some of the most important prerequisites of policy influence. First, they had available no institutionalized position within the policy-making structure, and no formal channels through which to communicate their views to decision makers.[13]

Second, partly because of "lingering fear," partly because they had not been asked for some time to provide analytic research and policy advice, and partly because they lacked both access to economic statistics and the mathematical-statistical skills required to make use of them, economists' suggestions at this time were quite abstract, lacked concrete analysis of the likely economic results of alternative measures, and in general were not the kind of practical analysis and suggestions which would have been useful to policy makers. In mid-1979, Deng Liqun described the situation in this way:

> We [economists] have been accustomed to going from concept to concept, from quotation to quotation; this must be changed. . . . Some people copy each other and echo the views of others (ren yun yi yun) with no new words or materials. Comrades who do practical work feel that it makes no difference whether you have this kind of research work or not, or even feel that when you do it is bothersome (mafan). Now if some of the research institutes established by the departments [of the government] are able to draft documents for the director, deputy director, and Party

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[12] Hu Qiaomu, "Observe Economic Laws, Speed up the Four Modernizations," *Beijing Review* #45, 46, 47, 1978.

[13] Hu Qiaomu, then the President of CASS, and Deng Liqun, who oversaw economic research there, appear to have close relations with top leaders (Hu is known as a close associate of Deng Xiaoping, while Deng Liqun appears to have ties to Chen Yun); to some extent this may have served as a partial substitute for formal channels. It seems reasonable to expect that Hu Qiaomu's speech was drafted by some of the economists at the CASS, or at least that it followed consultations with them. But even if economists were perhaps able occasionally to exert influence in this way, it was very indirect and probably only when the intermediary in question turned to them for support for his own policy views.

> group, then this is considered not bad; not one is able to put forward opinions on policy. . . . In doing economic research work we must carry out deep investigative research, especially quantitative analysis. Only by adopting this method is there hope for research work.[14]

This may have overstated the case somewhat, but it indicates the rather low opinion which decision-makers had of economists' abilities at the time. In a situation like this, it is unlikely that economists' suggestions carried much weight; policy-makers must have preferred the advice of bureaucrats who at least had more information on the segment of the economy under their direction.

What little we know of policy-making in late 1978-early 1979 does suggest that top leaders relied primarily on their own intuitions or advice from the bureaucracy in formulating economic reform measures. The major increase in procurement prices, for example, followed consultation with different segments of the bureaucracy but apparently not with economists,[15] while the first set of reform documents promulgated by the State Council in July 1979 was discussed by an April 1979 work conference (probably attended by Party officials and bureaucratic representatives) and the Second Session of the Fifth National People's Congress, but not, it seems, by any gathering of economists.[16] Without an institutionalized position which would automatically involve them in these decisions, and without any demonstrated ability to offer meaningful advice, economists were easily ignored.

IV. 1979–MID-1980: EXPANSION IN PARTICIPATION

In early 1979 some steps were taken to alter the situation. Around March the State Council set up a Financial and Economics Commission, headed by Chen Yun, to take overall charge of economic work. After an April work conference which adopted a policy of "readjustment, reform, consolidation, and improvement" of the economy, the Commission established four investigative groups made up of bureaucrats and of economists from the CASS and other units to study questions related to this new policy.[17] According to the official announcement, these groups' purpose was to "thoroughly understand the economic situation of our country in an all-round way through close cooperation and joint efforts of comrades in charge of actual work and theoretical workers, gather and process data in a systematic way and make suggestions to the departments concerned that make policies on major issues."[18]

The establishment of these groups indicated an increased leadership recognition of the importance of economists' input. It also gave economists an official (if temporary) status within the government. The groups were headed by prominent figures—more bureaucrats/politicians than economists—who should have added considerable prestige to the operation.[19] They conducted extensive investigations into a large number of important policy questions, and some of their reports probably made their way into the hands of decision-makers.

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[14] *Jingjixue dongtai* (Trends in economics), September 1979, pp. 1-2.

[15] See Michel Oksenberg, "Economic Policy-Making: Summer 1981," *China Quarterly* #90, 1982, pp. 187-192.

[16] Xinhua, 28 July 1980, in You Lin et. al. eds., *Jingji gaige wencong* (Collected essays on economic reform), Vol. I, Shenyang, Liaoning renmin chubanshe, 1981, p. 304.

[17] The four groups studied questions of the economic structure (readjustment), economic system (reform), technology import and renovation of existing enterprises, and economic theory and method.

[18] FBIS, 3 September 1979, p. L3. A more detailed account of the groups' work is available in *Zhongguo baike nianjian 1980* (China encyclopedia yearbook), Beijing, Zhongguo da baike quanshu chubanshe, 1980, p. 292.

Although the formation of these groups did increase the chances of economists' views on policy matters becoming known to decision-makers, and indicated a receptivity of top leaders to economists' advice, at least two factors probably made their activities less influential than it would appear on the surface. First, the body under whose auspices the groups conducted their research, although nominally in charge of economic work, in practice does not appear to have been a key decision-making organ. The Commission held a meeting in September 1979 at which Chen Yun presented his views on economic work and readjustment; [20] other than this, it is not known to have carried out any activities. No known directives or decisions carry its imprimatur.[21] At least by 1980, and possibly earlier, discussions of economic policy and probably operative decisions occurred in a "central financial and economics leadership small group" composed of the premier and vice-premiers in charge of economic work.[22] Thus, the economists who made up the investigative groups were at least one bureaucratic layer removed from the key decision-making body; they were not directly a part of the decision-making structure.

Second, although the Chinese leadership asked the groups to provide policy proposals and thus indicated an interest in learning their views, it did not seem to have terribly high expectations about the results. Indeed, it would appear that the groups were conceived at least as much as a way of educating the economists as a method of obtaining useful policy suggestions. In a speech to economists at Beijing University, Deng Liqun (who appeared to supervise the groups' research even though he was not a member of the Commission [23]) made this clear:

> Recently the State Council set up a Financial and Economics Commission which is the national decisionmaking organ for financial and economic questions. It requested the five economics institutes of CASS and other units to undertake systematic investigative research, be able to supply materials for questions under discus-

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[19] The four were Ma Hong, a vice-President of CASS and concurrently head of its Institute of Industrial Economics; Zhang Jingfu, a member of the Commission and also Minister of Finance; Wang Daohan, vice-Minister of Economic Relations with Foreign Countries; and Yu Guangyuan, another vice-President of CASS and also a vice-Minister of the State Science and Technology Commission.

[20] The speech is available in *Sanzhong quanhui yilai zhongyao wengao xuanbian* (Selected important articles since the Third Plenum), Vol. I., Beijing, Renmin chubanshe, 1982, reprinted by Zhonggong yanjiu zazhishe, Taipei, Taiwan, 1983, pp. 171-176.

[21] See, for example, the list of central laws, regulations, and documents on finance and taxation in *1981 Zhongguo baike nianjian* (1981 Chinese encyclopedia yearbook), Shanghai, zhongguo dabaike quanshu chubanshe, 1981, p. 204.

[22] The composition of the group is based on information received by Michel Oksenberg during interviews in the summer of 1981 (op. cit., p. 174), but in a July 1980 speech Ma Hong revealed the existence of a "central financial and economics leadership small group" which had recently been holding discussions on the serious problem of economic subsidies. See Ma Hong, *Jingji jiegou yu jingji guanli* (Economic structure and economic management), Beijing, Renmin chubanshe, 1982, p. 241.

[23] When the groups were set up Yao Yilin stated that Deng, Zhang Jingfu, and Ma Hong would be responsible for calling future meetings; see Yao, "Tongxin xieli zuohao jingji gongzuo" (With one heart and united efforts do economic work well), in You Lin et. al. eds., *Jingji gaige wencong* (Collected Essays on Economic Reform), Vol. I., Shenyang, Liaoning Renmin chubanshe, 1981, p. 1.

sion and moreover to propose different plans and opinions for resolving the problems to give the Financial and Economics Commission for reference. We think this will be beneficial for changing the situation where the five institutes lack materials and only look at the past and will make them begin to consider future problems. This is a hopeful beginning.

Deng went on to give the rather devastating critique of economists' abilities quoted earlier.[24] Despite their hopes for the future, therefore, the top leaders obviously still harbored doubts at this point about the utility of economists' contributions.

Nor does the evidence suggest that the group studying reform was much involved in the planning of the industrial reform experiments carried out through 1980. Initial experiments were apparently carried out in a rather decentralized manner, with each province and ministry selecting various "test point" enterprises; if there was a single body overseeing the experiments it was probably the State Economic Commission.[25] As a result, there was no obvious way for the economists to have any input into the types of reforms which were adopted.

During 1979, the group studying the economic structure drafted a "preliminary opinion on an overall outline of reform of the economic system." [26] This aroused little leadership interest,[27] and the State Council subsequently established a System Reform Office during 1980 which drafted a reform plan. The Office apparently did not consult with economists beforehand; it circulated its draft to a small number afterwards. There was much dissatisfaction with the theoretical basis of the plan,[28] and either for this reason or because of the freeze on reform at the end of 1980, it was allowed to die. If the economists succeeded in killing this plan, then they were certainly not uninfluential; but it is noteworthy that they were not consulted until after it had been drafted.

Thus, one should probably not overestimate the investigation groups' influence on the policy process. But they were an important step toward increasing that influence. Apart from whatever impact the groups' reports might actually have had on decisions of the time, their establishment did help to convince the economists that they were expected to provide policy advice.[29] This was no small step forward from the situation during the Cultural Revolution and its immediate aftermath, when economists were expected simply to uphold whatever ideas were in favor and criticize those which were not. Moreover, as intended, participation in these groups undoubtedly gave economists greater access to economic data, and enhanced their understanding of practical economic problems. In these ways, the groups helped lay the groundwork for increasing economists' influence on policy.

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[24] *Jingjixue dongtai*, September 1979, pp. 1-2.

[25] This sense of decentralized experimentation is given by, among others, Han Xiulan, "Guanyu kuoda guoying gongye qiye jingying guanli zizhuquan de qingkuang he wenti" (The situation and problems in enlarging the management autonomy of state-managed enterprises), originally in *Gongye jingji guanli*, August 1980, reprinted in You Lin et al., *Jingji gaige wencong*, Vol. II, Shenyang, Liaoning Renmin chubanshe, 1981, pp. 237-248; and Yang Yixin, "Zifuyingkui gongye qiye shuizhong shuilu qingkuang jianjie" (A simple introduction to the types and rates of taxes in the industrial enterprises which take responsibility for their own profits and losses) in Ibid., Vol. IV, pp. 381-384. In September 1980 (when the leadership expected to expand the reform experiments to encompass all state enterprises) it was a State Economic Commission document which reported on the experiments to date and announced plans for further expansion; see Xinhua, 6 September 1980, in FBIS, 9 September 1980, pp. L27-29. Oksenberg (op. cit., p. 180) was told in mid-1981 that the State Economic Commission was charged with overseeing reforms in transportation, communications, light industry, and metallurgy.

[26] *Zhongguo baike nianjian 1980*, p. 292.

[27] Li Xiannian referred to a plan which was probably this one in a December 1979 speech, but went on to call for more investigation and discussion and for concrete plans (*fang an*), as opposed to the outline (*shexiang*) which the group had prepared. See Li Xiannian, "Zai quanguo jihua huiyi shangde jianghua" (Speech at the national planning conference), in *Sanzhong quanhui yilai zhongyao wengao xuanbian*, Vol. I, p. 301.

[28] Xue Muqiao says that the Office wrote a draft and then "sought opinions within a small scope," and that "many comrades felt that some problems weren't written clearly enough and especially that the theoretical generalizations were still relatively poor." Xue Muqiao, *Woguo guomin jingjide tiaozheng he gaige* (Readjustment and reform of our national economy), Beijing, Renmin chubanshe, 1982, p. 103.

V. FALL 1980: INSTITUTIONALIZATION OF PARTICIPATION

Events in the second half of 1980 had greater potential for expanding economists' influence. First, economic and political events of the period made top leaders even more sensitive to economic criteria than they had been to this point. Second, and undoubtedly as a consequence, economists acquired positions on new permanent advisory bodies located directly under a decision-making organ.

The fall of 1980 brought a questioning of the economic policies of the past few years. In 1977-78 optimism and a desire for dramatic achievements in economic growth had led to the signing of billions of dollars of contracts with foreign companies for plant imports which far exceeded China's repayment ability or capacity to provide necessary domestic economic support.[30] At that time a ten year economic plan with unrealistically high targets, heavily oriented toward heavy industry and new capital construction, was also adopted. Although the plan was dropped in 1979 after "readjustment" officially became the key goal, capital construction failed to decrease and planning for many of the largest imports—such as the Baoshan steel mill—went forward. In short, as many later pointed out, "readjustment" was not really implemented, and by mid-1980, serious economic problems—repeated large budget deficits, inflation, energy constraints, and increasing awareness of the irrationality and poor planning of some of the major imports—led to a rethinking of economic policy, as well as a number of personnel changes.

There is little question that the changes of fall 1980 inextricably mixed politics and policy. In September, several officials—including a vice-premier, Kang Shien—were reprimanded or dismissed for covering up a serious oil rig accident in the Bohai gulf in November 1979. Certainly the timing of this delayed criticism was not accidential. At the same time, Yu Qiuli (who had been in charge of economic planning when the ten year economic plan was drawn up and adopted) was replaced as head of the State Planning Commission by Yao Yilin, and Hua Guofeng yielded his slot as premier to

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[29] A good deal of publicity was given to how the establishment of these groups demonstrated the government's desire to involve economists in policy-making, and Chinese economists often make this point in conversation. The many articles of 1978-79 which argued that economists' role did involve analyzing policy and providing policy advice diminished considerably by 1981, suggesting that this view had become much more widely accepted.

[30] In a March 1979 speech to the Politburo, Chen Yun provided a trenchant critique of the planning (or lack thereof) which preceded the signing of these contracts and argued that China could not possibly support so many imports. See his "Tiaozheng guomin jingji, jianchi an bili fazhan" (Readjust the national economy, maintain balanced development), in *Sanzhong quanhui yilai zhongyao wengao xuanbian*, Vol. I., pp. 74-79.

Zhao Ziyang. These multiple personnel changes were indicative of political conflict.

For our purposes, though, the important point is the grounds on which the struggle was waged. Those responsible for the oil rig accident were criticized for "economic voluntarism." The large-scale imports were denounced as evidence of poor planning and neglect of economic criteria. The failure to decrease capital construction was supposedly due to continuing "leftism" in economic work. Despite later attempts to place the blame for the high targets and other mistakes of 1977–78 onto Hua Guofeng, the conclusion was inescapable: leadership changes in 1976–77 had not been enough to ensure intelligent economic policy-making, and they would not be so now. This conclusion was never stated publicly, but it revealed itself in new steps taken to provide an institutionalized voice for experts in the policy process.

In August 1980 the State Council financial and economics small group established a directly subordinate Economic Research Center (ERC). The Center is directed by Xue Muqiao and run by an eleven-person secretariat composed of leading economists from inside and outside the government bureaucracy. It brings together researchers from the CASS and other economic research institutes (although it appears to have developed a small permanent staff of its own) to fulfill the following tasks:

> (1) Primarily, to organize the various economic research units to study and discuss major macro-economic issues, particularly those of a long-term and strategic nature, and provide the small group with research reports and suggestions on the guiding principles, policies, and strategic decisions for the national economy.
>
> (2) To respond quickly with research reports to questions raised by the small group.
>
> (3) To call meetings of the various research units at fixed intervals to exchange views and suggestions on important economic questions, and to publish occasional research reports and materials which indicate to the leaders the results of their research.[31]

This center was rapidly followed by others. In early 1981 the small group also set up a Technical Economics Research Center (TERC), headed by Ma Hong (then head of the Institute of Industrial Economics, now President of CASS). Like the ERC, it brings together researchers from the CASS and the bureaucracy; unlike the ERC it also incorporates scientists from such Chinese Academy of Sciences institutes as Energy and Systems Science. While the ERC focuses more on macro-economic and long term problems, the TERC is oriented toward questions of a micro-economic and technical nature. Its tasks are also described as three:

> (1) To carry out feasibility research on plans, important technical-economic measures, and construction items recommended to the State Council by the ministries and commissions or by the small group itself.

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[31] Information on the ERC is from *Jingjixue dongtai*, February 1981, p. 13.

(2) To research strategic, overall, and long-term technical economic questions and give research reports to the small group.

(3) To analyze the predicted economic effect and results of implementing major technical economic policies, and raise suggestions for improving them.[32]

For two reasons, the TERC probably has greater influence than the ERC. First, it is more clearly involved in actual decision-making; if the terms of its mandate are actually carried out, all important economic proposals and plans should have to survive its scrutiny before becoming policy. Thus, economists would have a chance to point out potential economic harm and hopefully to veto economically irrational policies. Although it is impossible to tell if this has actually happened, the TERC has clearly been deeply involved in one of the most important areas of economic policy—the energy sector.[33]

Second, the TERC appears to have a more skilled staff than the ERC. Its daily work is performed by a permanent staff made up of individuals under fifty years old, who have knowledge of "technogy, economics, and the country's overall situation." This staff includes fifteen technicians around age thirty who understand "technogy, economics, and the use of computers."[34] Since the TERC draws in researchers from the Academy of Sciences, its members are more likely to have real quantitative skills (the Academy's Institute of Systems Science is the locus of most quantitative economic research in China; the Institute of Technological and Quantitative Economics of the Academy of Social Sciences is just getting started). Although there are serious deficiencies in the concepts and methodologies utilized by technological economists in China, there is little question that use of this analysis could result in improved decision-making.[35]

The ERC and TERC both share an important feature also characteristic of a third center, the Chinese Rural Development Research Center (established in May 1982 and run by Du Runsheng): they are headed by individuals known to have the respect and trust of top leaders, who consequently appear to have access to those leaders. This cannot help but increase the chances that advice provided by these institutions will be taken seriously.[36]

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[32] Information on the TERC is in *Jingjixue dongtai*, July 1981; *Jingjixue zhoubao* (Economics weekly), 14 June 1982, p. 1; and *Guangming Ribao*, 30 August 1981, p. 1, in FBIS, 10 September 1981, pp. K16–17.

[33] The TERC has been particularly active in the project to develop Shanxi Province as a major coal base. It was asked to analyze the original proposal (put forward by a vice-premier), and since then has convened conferences to analyze transportation and other aspects of the project. See *Guangming ribao*, 30 August 1981 in FBIS, 18 September 1981, p. K17; and *Jingjixue zhoubao*, 5 April 1982, p. 1 and 25 April 1983, p. 14.

[34] *Jingjixue dongtai*, July 1981, p. 5.

[35] See Erik Baark, "China's Technological Economics," *Asian Survey*, September 1981, pp. 977–999, for a discussion.

[36] Michel Oksenberg (op. cit., p. 177) found during interviews (as have others) that Ma Hong enjoys the confidence of top leaders, attends their meetings, and has access to all necessary information. Xue Muqiao has been a trusted advisor to top officials since 1949; moreover, since 1978 he has several times advocated major changes which later became policy, suggesting either that he has a great deal of influence on decision-makers or (more likely) that he has been selected to float the idea for them. For example, in mid-1979 Xue suggested that the government stop guaranteeing job assignments to all new graduates and allow youth to organize themselves into cooperative ventures; after a year of discussion and experimentation this became official policy.

Continued

The most recent planning for reform does appear to have involved much more extensive consultations with economists than was true in 1979–1980. In mid-1982, when leadership interest in reform revived, a newly-established State Council Commission on the Restructuring of the Economic System was given responsibility for drafting an overall reform plan, to go into effect in 1986. The Commission is chaired by the premier, Zhao Ziyang; its vice-chairmen are mostly high-level bureaucrat/politicians who have successfully supervised restructuring in particular sectors of the economy.[37] One of the Commission's main functions (in cooperation with the ERC) is to bring together bureaucrats and economists from various research units to discuss theoretical issues and past reform experiences as a basis for preparing the reform plan. Xue Muqiao has strongly implied that this is in contrast with the method adopted when the earlier plan was prepared.[38]

The ERC has worked closely with the Commission in organizing the discussions. The two bodies have established eight groups of economists (and some scientists) to debate theoretical issues related to reform and report the results.[39] In the months before Hu Yaobang's report to the Twelfth Party Congress made clear that China was to have a planning system which retained some mandatory indicators, the economists debated this question, with the majority reportedly in favor of the policy put forward by Hu: i.e., a combination of mandatory and reference indicators with some free market activity.[40] Economists' views are unlikely to have determined the outcome on this crucial policy question; yet the Commission undoubtedly provided the decision-makers with summaries of the discussions and possibly reports written by individual economists before the authoritative decision was made. At this point, it seems unlikely that major decisions on economic reform are made in ignorance of economists' opinions on the subject.

The Commission has also acquired responsibility for formulating individual reform measures. For example, when a decision was made during 1982 to reform the commercial system, the Commission was assigned the job of coordinating the relevant specialists to study this question and develop a plan and specific measures to carry it out.[41] It consulted with academic and bureaucratic specialists before drafting the reform document in coordination with the Ministry of Commerce.[42] Whereas in 1979–80 economists seemed little involved in drafting specific reform measures, the current arrangements now provide for greater participation.

To be sure, the new institutional arrangements and top leaders' increased willingness to hear economists' views are not enough to

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See Gordon White, "Urban Employment and Labour Allocation Policies," in Stephen Feuchtwang and Athar Hussain, eds., *The Chinese Economic Reforms*, New York, St. Martin's Press, 1983, p. 261. Less is known about Du Runsheng, the head of the Rural Research Development Center; Oksenberg (p. 177) characterizes him as having access and respect similar to Ma Hong.

[37] *The China Business Review*, July-August 1982, p. 29.

[38] Xue Muqiao, *Woguo guomin jingjide tiaozheng he gaige*, p. 103.

[39] *Jingjixue dongtai*, August 1982, pp. 8–10.

[40] Ibid. For Hu Yaobang's report see *The Twelfth National Congress of the CCP*, Beijing, Foreign Languages Press, 1982, pp. 7–85.

[41] Zhao Ziyang, "Report on the Sixth Five Year Plan" (3 November 1982), in *Beijing Review #51, 20 December 1982, p. 32.*

[42] *Renmin ribao*, 15 December 1982, p. 5 and 27 December 1983, p. 2.

ensure that those views will be influential. The economists must provide practical suggestions, backed up by convincing analysis. In September 1982, four months after the Commission had first established groups of economists to discuss reform, Xue Muqiao reminded those running the discussions that the goal was to produce an overall reform plan and said that discussions must become much more specific and oriented toward that goal.[43] Obviously the leaders were finding (as have policymakers and bureaucrats in most other countries) that the academics' discussions were too abstract and theoretical to be very helpful. Thus, although economists now have the opportunity to participate in policy discussions, their contributions, at least in this area, have apparently not fulfilled the decisionmakers' hopes. Inevitably, academic discussions tend not to be directly relevant to policy decisions; however, in China certain weaknesses in the economics discipline make this a particularly serious problem and are probably the major barrier at this point to economists' increased influence.

VI. Weaknesses of the Discipline

The weaknesses of the Chinese economics discipline are well known. Robert Dernberger has described the investigation work performed by Chinese economists as basically "fact gathering" rather than analysis[44]; much of what is published in economics journals is not even worthy of that name, but is simply assertions of the correctness of current economic policy. Obviously, there are many reasons for this, but two in particular stand out.

First, Chinese economists operate in a political system where disagreement with current policy has at times in the past been regarded as tantamount to treason, and where the costs of such disagreement have included not only the loss of a job and public criticism, but also imprisonment or hard labor. As a result, many are reluctant to engage in any policy analysis, and choose instead simply to propagate and justify leadership decisions. Second, the most powerful concepts and tools of Western economics have generally been regarded with suspicion; proponents of quantitative analysis, for example, have always had to defend it against the charge of being "bourgeois economics." Two contributing factors have ensured the perpetuation of the non-quantitative character of Chinese economics: economists' lack of training in mathematics and statistics,[45] and a tendency to regard all statistics as state secrets so that economists are often unable to obtain access to them.

To what extent have these problems been resolved since 1978? In general, one would have to say that much has changed and that the signals are very encouraging, but none of the problems is wholly solved. The political constraints on free speech have certainly diminished considerably. The norms, however, are still those of democratic centralism: economists can (and should) disagree with improper policies in internal channels, but publicly they must uphold those policies until the Party decides to change them.[46] Moreover, the regime has reserved the right to declare certain views "anti-socialist" and thus illegitimate: one such view is that the Chinese economy is not developed enough for central planning.[47] Nevertheless, in the post-Mao period no economist has been publicly criticized by name for holding anti-socialist views, and all the evidence suggests that economists are far less fearful of expressing their opinions than they were six years ago. Objectively, the scope of permissible discussion appears to have widened considerably, and policy suggestions which do not attack the fundamentals of the system are unlikely to be regarded as anti-socialist.

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[43] *Jingjixue zhoubao*, 13 September 1982, p. 2. An article in the October 1982 issue of *Jingjixue dongtai* made the same point: Wu Jie, "Sangeyuelai jingji tizhi gaige lilun wenti taolun qingkuang" (The situation of the last three months discussion of theoretical issues in economic reform), pp. 9–10.

[44] Dernberger, op. cit., p. 575.

[45] One indication of the general lack of skills in these areas is that Xue Muqiao, who presided over the State Statistical Bureau for the first six years of its existence (and is one of China's most prominent economists), said in February 1983 that people like himself who knew only a little about statistics were prone to mistakes in using statistical materials, and that as a result, at least in the near future, the responsibility for using such materials for analytical research would have to rest with the statistical workers. (*Renmin ribao*, 7 February 1983, p. 5.)

The problems of lack of access to data and lack of skills in its manipulation have also been somewhat ameliorated. The most prominent economists and some top leaders have repeatedly declared their belief that Chinese economics must become a quantitative discipline.[48] Western economists have been invited to lecture on econometrics, and much work has gone into compiling input-output tables and the like. It is not at all clear, however, that the new belief is being translated into curricular requirements in universities [49]; and even if new economists were all trained with the necessary skills, the discipline would anyway be dominated for a long time to come by individuals without them.

More steps have been taken to increase access to economic data. The sudden (relative) outpouring of statistics in the last three to four years that has been such a boon to foreign economists has been equally appreciated by Chinese ones. There is general agreement that considerably more information is available than in the past, but most economists also argue that even freer circulation of data is necessary.[50] Recently, however, much leadership attention has gone to a problem which can be regarded as more fundamental: the poor quality of the data which is collected. Yu Guangyuan, Sun Yefang, Ma Hong and other prominent economists have been very outspoken in criticizing the poor quality of China's statistics.[51] The top leaders have acknowledged the correctness and importance of these criticisms, and a new statistical law has been promulgated.[52] One can hope that the top-level awareness of the importance of producing accurate data will be followed by a greater commitment to making it available to the economists.

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[46] For one such statement see Su Shaozhi, *Woguo shehuizhuyi jingji yanjiu zhongde ruogan wenti* (Some problems in research on China's economy), Shanghai, Renmin chubanshe, 1980, p. 28.

[47] Xue Muqiao made this clear in a May 1982 speech to economists where he criticized "a scholar in a university economics department" for the mistaken view that China now and for some time to come would not be ready for central planning. Although Xue did not refer to this view as "anti-socialist" (indeed, he used the appellation "comrade" for people holding such mistaken views), he said that this notion "departed from the overall direction." The implication was clear. Xue's speech is in *Guangming ribao*, 19 May 1982, pp. 1 and 3.

[48] E.g., see the earlier quotation by Deng Liqun; also, Ma Hong, "Zuohao jianshe he gaizao xiangmude guomin jingji pingjia gongzuo" (Do well national economic evaluation work of construction and renovation items), *Guangming ribao*, 20 February 1983, p. 3; and Yu Guangyuan, "Jingji guilu he jingji xiaoguo" (Economic laws and economic effect) in *Zhongguo jingwei qiye guanli yanjiuban jiaoxue cankao ziliao xuanbian* (Selected reference teaching materials from the State Economic Commission enterprise management study class), Vol. IV, Beijing, Qiye guanli chubanshe, 1979, p. 98.

[49] The First National Conference on Quantitative Economics, held in Xian in February 1982, recommended that the Ministry of Education use mathematical or science and engineering skills as a criterion for enrolling university economics students (*Jingjixue dongtai*, May 1982, p. 8), but this does not seem to have occurred. Certainly, the economics classes which I attended at Beijing University in 1982-83 required no mathematical or statistical skills. One problem is that even if the students had such skills, the professors generally do not.

[50] When the national newspaper *Jingji ribao* (Economic daily) began publication in January 1983, economists wrote in to express their hopes for it. Probably the most common "hope" was that it would provide more economic data for economists; this suggests that the problem is far from solved. See, e.g., Sun Shangqing, Xu Dixin, and Chen Daisun on 7 January 1983, p. 3, and Dong Fureng on 23 February 1983, p. 3.

VII. Conclusion

In contrast with 1978, China's economists now participate in institutions which are located within the government structure directly under the body responsible for economic decision-making. The heads of these institutions seemingly have a good working relationship with the key decision-makers; they and their institutions appear to have a voice in many if not most important economic decisions. The leaders are more cognizant of the importance of economic criteria than they were six years ago, and their actions suggest that they believe economists' participation can help to promote better decision-making. Freedom of discussion and access to data have increased considerably, making economists' participation in fact somewhat more useful to policymakers. Unquestionably, these changes are ones which would tend to increase economists' influence within the policy process.[53]

These changes did not occur immediately after the fall of the "gang of four." The post-Mao leadership has gone through a learning process. Moreover, some of the changes were probably partly a side-effect of a political struggle in which economists were basically on the sidelines. So far, the political dynamics of post-Mao China have operated mostly in favor of the economists (the spiritual pollution campaign of 1983-84 is an example of when they did not). But if the economists are to convert their increased access and attention into real influence, they will have to take advantage of the current climate to begin restructuring their discipline. They must increase their quantitative skills and their analytic capacity; they must become able to predict with some success the economic effects of different policies. Only if they can do this will they be able in the long run to hold their own against the many other participants in the policy process. In the future, the influence of the economists can probably be measured less by progress in the reform of the economy, than in the reform of economics.

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[51] E.g., Yu Guangyuan, "Jihua guanli yu jihua guanli jigou" (Plan management and plan management organs), in You Lin et. al., eds., *Jingji gaige wencong,* Vol. II, Shenyang, Liaoning Renmin chubanshe, 1981, p. 12.

[52] The law, carried in *Renmin ribao,* 10 December 1983, specifies the organizational structure of statistical collection and administration and prohibits falsification of data. FBIS, 17 February 1984, pp. K17-21, carries speeches by several top leaders praising the law.

[53] For reasons of space this article has not discussed several other developments which have probably increased economists' influence. Among the most important are the activities of the economic societies. Many of these—especially the Chinese Enterprise Management Association, which has been active since early 1979, and the Federation of Economic Societies—have begun to offer consulting services to government units and enterprises, and to hold training courses in economics for cadres. For discussions of some of these activities, see *The China Business Review,* July-August 1979, p. 7 and January-February 1980, pp. 8-12; *Jingjixue zhoubao,* 2 August 1982, p. 4 and 3 May 1982, p. 4; *China Daily,* 23 March 1983, p. 3; and FBIS, 17 October 1983, p. K11.

II. HUMAN FACTORS

OVERVIEW: CHINA'S HUMAN RESOURCES*

By Leo A. Orleans**

Human resources represent the basic wealth of a nation. All too often, however, economic potential is measured with little consideration for the special strengths and weaknesses which may be characteristic of certain populations. This is not surprising, since, in addition to the more tangible factors such as levels of education and physical well-being, there may be elusive and unidentifiable historical and cultural factors which would be impossible to quantify and insert into an equation of a nation's economic potential. This methodological inadequacy is especially prejudicial to a country like China. First, the use of standard economic measures, when divided by one billion people to derive per capita national comparisons, inevitably places China near the bottom of the world's development scale. And second, the quality of China's human resources cannot be divorced from the culture, traditions, and thousands of years of history which distinguish the Chinese people. In other words, when it comes to human resources, China's development must be viewed through the ethereal shroud of the past.

For the most part, the essays in this section deal with "hard" information and reflect, as does the rest of the volume, a statistical explosion which few of us would have predicted half-a-dozen years ago. Nevertheless, directly or indirectly, the reader can derive some feel for the ambitions, aptitudes, opportunities, general morale, and other individual determinants which may motivate (and sometimes impede) the progress of the Chinese people. The next four chapters provide an important human perspective on much of what is included in the rest of the volume.

POPULATION

In China, more than anywhere else, the size and rate of growth of the country's population dominate all aspects of national development. And small wonder. A nation whose population is currently the size of Europe and Africa combined, and which annually increases by a number equal to the populations of Austria and Norway, does indeed face unique problems. It is a constant anguish to those policymakers who struggle with domestic problems and an anxiety to those who must deal with China's foreign affairs.

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*This Overview was written prior to the receipt of the papers included in this section; references to specific chapters were added at a later date.

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After decades of heated speculation—and most likely for the first time in Chinese history—the size of China's population is no longer in dispute; it was basically settled by the 1982 census.[1] That the mid-year population figure of 1,008,200,000 was essentially the product of a check of the country's registers, or that it may not have been as precise as the Chinese officials and some foreign observers would suggest, does not detract in any way from either the effort or the results of the census. It was carefully planned and thoroughly implemented with the help of specialists from the United Nations and experienced professionals from other countries. And it was China's first census to be processed by computers. The census was followed by a one-in-a-thousand fertility and family planning survey, which estimated total fertility rates, age-specific fertility rates, and age at marriage, and provided other important information on the characteristics of China's population. It is safe to say that international demographers have never experienced such a rapid statistical transition from famine to abundance as they did in the case of China.

What are some of the specific continuing population problems which concern China's planners?

Obviously, the overwhelming concern is with population growth. After several decades of indecision about whether a large population is an asset or a detriment to development, in the early 1970s Beijing disposed of this ideological dilemma and made family planning the nation's top priority. In a nutshell, by establishing local planned-birth committees in residential areas, enterprises, and institutions, and with the close collaboration of public health personnel, very personal and intimate controls and methods of persuasion were established; contraceptives—especially IUDs—were free and readily available throughout the country; abortion became an integral part of the family planning program and sterilization was encouraged; and the need for vigorous control of population growth was written into the 1978 constitution of the PRC. Thus, by introducing a variety of incentives and penalties, the authorities managed to lower the birth rate from over 30 per 1000 in 1971 to 18 in 1979—an astonishing reduction in the rate of natural increase from 2.3 to 1.2 percent.

Chinese authorities responsible for population control knew that they could not rest on their laurels and that, given the social and economic pressures for larger families in the rural areas, they had to move forward to avoid losing ground. Thus, in 1978 Beijing went a step farther and introduced the one-child family policy, which has received so much publicity around the world. The new approach was not very different from the measures which were found to be successful in preceding years, but it did increase the emphasis on economic rewards for those who complied with the one-child family norm and increased the penalties for those who disregarded it and went on to have an "unauthorized" child.

There are two aspects of the one-child family policy which have been disconcerting to the family planning leadership. The first is that despite all the theoretical explanations directed at the people and the energy expended in implementing the policy, China's crude birth rate has shown an increase in 1981 and 1982 before dropping again to 17.5 per 1,000 in 1984. Why? The first reason is a factor beyond Beijing's control: high birth rates of earlier decades (the peak years being 1954–57 and 1962–71) mean that some of China's largest cohorts are entering the marriageable ages. The Chinese rightly point out that the success or failure of the family planning program will have to be judged not by the crude birth rate (which would go up even if the average number of births per woman remained unchanged), but by the increase in the number of couples in the rural area who commit themselves to having only one child. The second major cause of the upsurge in the number of births is a side-effect of the production responsibility system introduced into the rural areas. By making each household in effect an independent production unit, this policy increased economic incentives, stimulated the heretofore dormant initiative of the peasants, and, as expected, increased productivity in the countryside. On the flip side, of course, it made implementation of the one-child policy much more difficult. The abrogation of the unified distribution system severely limited the pressure that could be exerted by brigade or production team cadres. While peasants, whose prosperity by tradition is closely tied to the size of the family, are insisting that having more children is nobody's business but their own, authorities are accusing them of "looking at the problem from their own courtyard." The dilemma of how to maintain peasant initiative in agricultural production, while maintaining controls over family size, has not yet been fully resolved by China.

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[1] The 1982 census is fully discussed by Judith Banister in the first paper of this section.

The other aspect of the one-child family policy which has disconcerted the Chinese leadership is the degree of adverse publicity it has received abroad due to reports of coercion in family planning. Indeed, there is no question that in order to meet birth planning targets many localities have resorted to forced abortions, compulsory sterilizations after the birth of a second (sometimes first) child, and the insertion of unwanted IUDs. The one-child program, implemented in a society which still values the male child, has also resulted in an increase in female infanticide. Officially, however, while admitting instances of coercion and female infanticide, the authorities in Beijing recoil at any suggestion that either is condoned, attack what is euphemistically referred to as "administrative measures" and "remedial measures" in implementing family planning, and stress the need for "painstaking and meticulous ideological and political work" to temper the excess of overzealous cadres. It is also important to understand that China sees the one-child policy as an interim measure which will be relaxed by the end of this century, after the unusually large cohorts pass through their child-bearing ages. Some provinces are already starting to allow second births if the first child is a girl.

Some in the West accept the leadership's contention that it is attempting to control local extremes; others are convinced that Beijing "winks at them." Some believe that there is no acceptable excuse for coercion in family planning, while others are more likely to accept the Chinese position that for a poor country with over one billion people, controlling population growth is not simply an important priority for national development but a necessity for national survival and that instances of coercion in family planning must be viewed from the perspective of Chinese ethics and standards and not Judeo-Christian morality. If we are willing to accept the latter premise, then logically we are also likely to agree with the Chinese that "in a developing socialist country like ours, full implementation of the citizens' rights will take time" and it would seem that having an unlimited number of children is one of the rights that will have to wait.[2]

HEALTH AND NUTRITION

No one would expect unanimity in evaluations of China's economic and social policies, but Beijing does, in fact, receive almost uncontested high marks in the fields of public health and medicine.[3] Although China's cyclical development did not entirely bypass health care, which also experienced occasional setbacks (especially during and immediately after the Great Leap Forward), the priority assigned to health problems was never in doubt from the very first years. Having neither the resources nor the time to provide the people with first-rate, Western-style medical care, the approach was to pursue what was possible and affordable. First, the emphasis was on preventive health care, which in the early years involved primarily inoculation of the entire population against most of the dreaded diseases and education of the people about the importance of public sanitation and personal hygiene. National sanitation and cleanup campaigns initiated in the 1950s continue to this day and have succeeded in making China one of the cleanest low-income nations in the world.

The second prescription adopted by the Chinese probably would not have met with the approval of the Western medical community; it has to do with the utilization and education of the health manpower. Once again, lacking time and resources necessary to raise the standard of medical personnel to Western levels, the Chinese authorities took a different tack. While medical universities continued to graduate full-fledged physicians (except during the Cultural Revolution), great stress was placed on secondary-level medical education and on a great variety of other programs that turned out both full-time and part-time multipurpose health auxiliaries. Furthermore, since the overwhelming proportion of China's population continued to depend on practitioners of traditional Chinese medicine, they too were incorporated into the health system and persistent efforts were made and continue to be made to elevate their stature within the medical community. In other words, the Chinese did it "their way."

The results have been impressive and the general health level of the Chinese population is now comparable to and in some cases exceeds that of some Western nations. Life expectancy almost doubled in the past 35 years, reaching 67.88 according to the 1982 census (66.4 for males and 69.4 for females). Progress is also evident since the main killers are no longer infectious and epidemic diseases and infant mortality, as in the past, but rather heart and neurovascular diseases and cancer, which are typical of the more advanced nations.

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[2] I realize that these comments may well qualify me for John Aird's "foreign apologist" catetory. It is therefore especially important for the reader to spend some time with Aird's thoroughly documented chapter, in which he makes the strongest possible case against the way China's family planning policies are being implemented.

[3] In the last chapter of this section Nick Eberstadt provides the reader with a somewhat different perspective (in tone if not in substance) on China's health, nutrition, and education.

China now has over 3 million health care professionals, over 66,000 hospitals with some 2 million hospital beds, over 100,000 outpatient clinics, as well as a variety of specialized prevention stations and sanatoriums. The growth in health facilities and health personnel is impressive until considered on a per capita basis—the bane of China's statistics. Even including senior nurses and pharmacists, China has less than one high level medical professional and about two hospital beds for every 1,000 people—many of the beds little more than cots in relatively primitive rural health facilities. Furthermore, there is a continuing disparity between the health services in urban areas and those in rural areas—albeit, seriously ill peasents have access to urban facilities.

Even though the current emphasis on modernization tends to be critical of Mao's mass mobilization model, which stressed numbers rather than professionalism in attaining goals, the involvement of tens of millions of people in health and sanitation activities, within the context of China's closely knit family and neighborhood system, continues to compensate for the shortages in high-level medical personnel and modern health facilities. Even today, when it comes to health, the emphasis is on prevention, in terms of both the individual and the environment in which he lives. On the individual level, specially trained health personnel not only provide vaccinations and inoculations, but conduct surveys of the population to detect specific problems which might be more effectively treated in their early stages. On the environmental level, the emphasis continues to be on water purification and safe sewage disposal (and use in agriculture), so that although increased industrialization and limited funding for expensive air and water purification processes have created set-backs in some areas, the pressure for improvements in the release of soot and especially in the discharge of industrial liquid waste never ceases.

Of special significance in any discussion of human resources are the measures taken to improve occupational health—a term which usually refers to urban workers. In China, concern about worker exposure to occupational hazards seems to be highest in large state-run enterprises and gradually decreases as one moves down into the less-prestigious activities. There is a variety of research conducted in special institutes and occupational disease hospitals to increase worker safety. Through cooperation between ministries and hospitals and clinics attached to specific industries and large factories, there are efforts to introduce protective devices for reducing occupational disease and injury and to provide appropriate education to the workers. However, worker resistance to many of the protective innovations is a major problem for the cadres. All medical services are provided free of charge to workers in state-run enterprises. Illness does not affect the salary and, if necessary, workers are sent to sanatoriums or rest homes until they are able to return to work. This somewhat idyllic picture obviously does not cover all urban workers and employees and it certainly does not apply to the peasants. In the countryside health care is not free, health insurance payments are not compulsory, and there are significant local variations in the services that are available.

Finally, a vital aspect of the health of any nation's human resources is nutrition and the availability of food. In China there are no surveys which would provide diet information for individuals or indicate regional differences in the amount and composition of food consumption. Figures on per capita food availability based on population and total food supplies, even when adjusted for such factors as non-food uses and waste, are obviously rather gross approximations, especially for a country like China where some of the statistics necessary for such calculations are either missing or suspect. Nevertheless, estimates by international agencies show that China's levels of energy and protein availability compare favorably to other developing countries and tend to support the casual but favorable impressions brought back by foreign visitors.

There is, however, a down side to the nutrition picture, which worries Beijing. First, there is a recognized unevenness in the per capita caloric consumption. It is probably safe to say that at this time malnutrition is rare in the country, but there are considerable regional differences in the availability of food and, as is true in most of the poorer nations, there continue to be differences between the cities and countryside in the type and amount of food available. Second, despite the striking overall performance of agriculture in recent years owing to the increase in the quantity and efficient use of inputs, multicropping, irrigation, and increased incentives, China's long-term concern is with the continuing depletion of arable land. Millions of hectares of scarce arable land have been taken over in the expansion of urban areas and rural industries, and some of the most productive lands have suffered both natural and man's own destruction. Population growth together with the decrease in cultivated land has resulted in a per capita decrease of arable land from 2.8 mu [4] in 1952 to 1.49 mu in 1983—a process which is bound to continue despite efforts to slow down unauthorized land use and accelerate the opening of new lands for agriculture. Third, both Western and Chinese analysts agree that in recent years China has been exceptionally fortunate with regard to weather, and that a bad year could seriously affect agricultural production.

Chinese planners of course are aware of the precarious balance that exists between food and population—a balance which over the years has been adversely tipped by both natural and man-made disasters—so that agricultural production and population control are likely to remain at the top of China's priority list into the indefinite future. On the other hand, had anyone suggested a few decades ago that China would be feeding over one billion people, that prognosticator, at best, would have lost all professional credibility. The fact that China, with over one-fifth of the world's population, is not a burden on the world's food resources is without doubt that country's most impressive accomplishment.

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[4] 1 mu = 1/6 acre = 1/15 hectare.

EDUCATION

Science and technology may justifiably be viewed as the door to China's modernization, but how widely it will open depends on the availability and quality of the country's human resources—in other words, on the effectiveness of the educational system. We don't need to go into a detailed review of the past 30 years when education was a primary target of every leftist campaign, to appreciate the seriousness of the manpower handicap facing the Chinese leadership. Certainly the disastrous effects of the Cultural Revolution are fully appreciated by all. The educational system of the early 1970s may have been appropriate for Mao's vision of Chinese society, but became grossly deficient when the new leadership changed the vision. Unfortunately, while national goals can be changed overnight, adjusting the character and substance of education to match those new goals can take a decade or more. After 1977, a compete turnabout in the educational system was decreed: no longer a tool of revolutionary idealism, the system instead would serve the needs of China's economy. In this brief survey we can only highlight the goals, which are now clear, and the extensive problems associated with the restructuring of the educational system—for foremost of which is a school age population (6–18) of some 300 million.

Mao's commitment to elementary education and to the eradication of illiteracy in the country was never in question. Growth in the enrollment in primary schools was impressive from the start and at its peak there were some 150 million children attending such schools. But China has yet to achieve the goal included in every five-year plan—to make elementary education "basically universal." The problem is in the countryside where over 80 percent of the population live. In most rural areas 90 percent or more of the elementary age children start school, but no more than 60 percent attend regularly, and of these, no more than a third "really reach the level of an elementary school graduate." The attainment of universal elementary education has been made more difficult with the introduction of the responsibility system, for now parents are even more likely to keep their children at home to participate in various production activities to increase the family income—the bottom line in today's China. The poor performance of those who do manage to complete elementary education is the result not only of excessive absences, but also of extremely poor school facilities and the inadequate qualifications of rural teachers, most of whom have not gone beyond junior middle school themselves. An additional problem in the countryside is that of retention, for even now many youths who learn to read and write find little opportunity or inclination to practice their newly acquired skills and soon lose them. It is not surprising, therefore, that the 1982 census reported about one-quarter of the population over 12 years of age to be illiterate.

Despite some fluctuations due to changing conditions and policies in the rural areas, there has been a steady upward trend in the number of children attending elementary schools reaching 64 million in 1957, 116 million in 1965, and peaking at 146 million from 1978 through 1980. Since 1980, however, the number of six-yearolds has been getting smaller because of declining fertility throughout the 1970s; by 1983 enrollment had dropped to 136 million and is expected to drop to 130 million in 1985. A large proportion of those who manage to complete primary schooling go on to start junior middle schools, which usually have a three-year curriculum and have shown rapid expansion in the rural areas. Enrollment in these schools is expected to rise from 45 million in 1980 to 50 million in 1985. As in the case of primary schools, because of the shortage of qualified teachers and material resources, the level of education in the rural junior middle schools is quite low. Although young people do acquire adequate language and mathematical skills, in most rural schools a large part of the curriculum involves both manual labor and practical teaching.

The enrollment drops off sharply at the senior middle level, which includes general (or "ordinary"), technical, vocational, and agricultural senior middle schools. At this level, a basic problem is the excessive growth of the general schools since the Cultural Revolution, and in recent years there has been a concerted effort to shift the balance from schools which provide the entrants for institutions of higher education, to "various kinds of vocational middle schools." The plan is to decrease the excessive number of applicants eager to take the college entrance examinations—for whom there are relatively few slots in the universities—and increase the number of scarce middle level technical and managerial personnel. Thus, between 1980 and 1985 the number of students in general middle schools is expected to decrease from 9.7 million to 7.5 million, while technical enrollment will increase from 680,000 to 780,000, vocational enrollment from 134,000 to 870,000 and agricultural middle school enrollment from 320,000 to 2,280,000. Curiously, if the six-fold increase in agricultural middle schools is excluded, the enrollment in the other three types of schools, most of which are in urban areas, would show a decline.

Before proceeding to higher education, it is important to stress that despite the deficiencies in much of the primary and secondary education, China does provide a "multi-track" system which, through a series of examinations, channels the bright students through the so-called key-point schools, which provide the best education available in China. The most frequently heard criticism of this system is that because the overwhelming proportion of these schools is urban, the system is unfair to rural children and makes it virtually impossible for them to pass the college entrance examination. The educational deck is clearly stacked in favor of a bright boy, who is lucky enough to be born in the city, preferably of professional parents, at least one of whom is in the state bureaucracy. After going through key primary and secondary schools, he would have a distinct advantage in taking the college entrance examination, passing with high marks, and getting accepted by one of the more prestigous key universities. The current inequities in access to higher education are often decried by Western observers. But at this stage, when the priority is on overcoming the shortages in professional manpower left by the Cultural Revolution, China cannot yet worry about egalitarianism in the educational system. Nevertheless, some initial steps toward change have been taken. Recently, by lowering entrance requirements, Beijing has opened a path for rural youth to enter specialized agricultural or medical colleges if, upon graduation, they promise to return to work in the countryside.

As long as Mao was alive, higher education—which produced the necessary but ever-suspect intellectuals—represented the basic litmus test of the prevailing mood in Beijing. The ascent of the radicals would inevitably and quickly have an adverse effect on higher education. The disastrous results of the Cultural Revolution have become well known and, ever since 1976, those responsible for educational reforms have been searching for ways and means to overcome the chasm in professional manpower which developed during the preceding 10 years. Teaching methods had to be re-evaluated, curricula had to be revised, faculty had to be strengthened, facilities had to be improved, and, of course, the enrollment had to be rapidly increased. This was obviously an impossible assignment, and while considerable progress has been made on all points, the development of higher education has been uneven and, as in the case of primary and secondary education, Chinese colleges are also following a multitrack system, which ranges from rural two-year technical and teacher training colleges to international-level graduate education. There are many other factors which create qualitative diversities in higher education. In addition to regular and key universities under the Ministry of Education (now the State Education Commission), there are other universities under provinces, other ministries, and other institutions. There are full-time college students and those who complete a form of higher education through the rapidly expanding system of continuing education. And there are regional differences, for, as is true in the implementation of all policies and regulations, each locality is encouraged to make adjustments that take into account "local circumstances." Actually, the overall enrollment in higher education has been relatively modest, showing the largest increase between 1976 and 1980 when it went from 564,000 to 1,020,000. In 1984 institutions of higher education enrolled 1,394,000 students, already exceeding the 1.3 million target set for 1985.

Despite political fluctuations and changes in total enrollment, there has been considerable stability over the years in the proportion of the student body enrolled in specific broad majors—a stability which continuously overemphasized the training of engineers and scientists at the expense of social sciences and the humanities. For example, the proportion of engineering students has hovered at about one-third of the total college enrollment; students in the natural sciences usually account for 6 to 8 percent of the enrollment; in agriculture and forestry, about 6 to 7 percent; and in medicine, usually in the 9 to 11 percent range. In recent years considerable efforts have been made to train more professionals in the social sciences, but although percentual increases have been impressive, the actual numbers are still too small to meet national requirements.

Graduate education, which for all practical purposes was nonexistent before the late 1970s, naturally showed a rapid growth. Graduate enrollment in universities and in the select research institutes of the academies of sciences is expected to increase from 21,600 in 1980 to 50,000 in 1985. At this level there is an even greater predominance of majors in scientific and technical fields, so that in 1983, for example, two-thirds of these students were in science (21.7 percent) and engineering (45.9 percent). In 1984 China enrolled 2,080 doctoral degree candidates.

The number of Chinese students going abroad has also been increasing steadily. Most recently Beijing reported that between 1979 and 1984 some 33,000 students and scholars went abroad to study, that 10,000 have already returned, and that 7,000 of them went at their own expense. At present there are probably about 12,000 Chinese studying or doing research in the United States. In the coming years Beijing plans to send, on the average, 3,000 persons each year to study abroad, and in the process to decrease the number of older scholars and increase the number of younger graduate and postgraduate students.

UTILIZATION OF HUMAN RESOURCES

As we have seen above, China's human resources are healthy and, for a country with an overwhelming rural population, reasonably well educated. Adequate employment, however, for its manpower, and especially for its youth, persists as one of the country's many critical problems. In China's case, unemployment is related directly to the size and growth of the population—yet another reason why Beijing places such high priority on controlling population growth and attempting to coordinate it with economic development. The current problem, however, is with individuals who are already born, and nothing can highlight it better than the following perhaps slightly exaggerated figures reported by Beijing: In the next 20 years China will have to provide its people with as many as 500 million to 600 million jobs![5]

After more than a decade of insisting that unemployment (basically an urban phenomenon) did not exist in China, since 1976 the leadership has been admitting that in the cities many millions of people were "waiting for work"—China's euphemism for being unemployed—and that 70 percent of them were women. Three factors made the situation especially severe in the late 1970s. First, every year as many as 20 million youths (about 3 million in the urban areas) entered the working ages—a figure which will increase to between 25 and 30 million in the late 1980s and early 1990s. The problem is made more acute by the fact that in China three-quarters of all the females 15 years of age or older are in the labor force—one of the highest female participation rates in the world. Second, the Cultural Revolution was a period when many channels for employment—especially in the service sector—were branded as "capitalist" and therefore blocked. And third, the problem was compounded by the return of many millions of young people who had been sent to the countryside to do physical labor. By 1979, with belated candor, Beijing declared the insistence that "there is no unemployment problem in China" to be the error of "ultraleftism."

The need to provide employment for millions of city youth was one of the basic considerations in the gradual introduction of urban reforms. And indeed Beijing reports some impressive successes: between 1977 and 1982 the urban economy managed to provide employment for over 40 million people and by 1983 urban unemployment dropped to well under three percent. With a growing urban economy and especially with increased investments in light industry, the state was able to provide one-third of these new jobs. Most of the others were found in commerce, food servicing industries, service trades, and other activities which had been neglected for such a long time. Some workers became part of collective undertakings, while millions of others took the now acceptable "capitalist road" and went into business for themselves. It should also be repeated that since general middle school graduates lacked the skills necessary for immediate employment and spent all their time preparing for college entrance examinations, the renewed emphasis on vocational schools should ease the unemployment problem in the future.

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[5] The chapter by Jeffrey Taylor presents detailed and more precise statistics, as well as a thorough discussion of China's employment, unemployment, underemployment and related labor forces issues.

On the other hand, the push to achieve full employment resulted in large numbers of unneeded workers being employed by state enterprises and absorbed into cooperatives, creating surplus labor which Taylor estimates to be between 10 and 15 percent. In part to better cope with this problem, as well as to change the customary expectation of life-long security for workers (the "iron rice bowl"), in 1983 Premier Zhao called for reforms in the labor personnel system "so that people who are employed can be dismissed, promoted, or demoted. . . ." Although Zhao's prescription would be difficult to implement, the "iron rice bowl" is indeed starting to show many cracks.

Another problem which continues to frustrate the leadership is how to improve the utilization of scarce professional manpower, especially of scientists and engineers. National enrollment plans are formulated without considering the capabilities of institutions of higher education; because of the mismatch between the supply and demand of scientific and technical personnel in specific fields, a large proportion of the graduates are assigned to jobs unrelated to their studies; many graduates not wanting to relocate for work in small towns or rural areas or in the distant inland provinces, attempt to circumvent job assignments or simply refuse to abide by them. To overcome these and other related problems, Beijing has been pursuing some diversified and imaginative policies toward education and training (on the supply side) and toward utilization of professionals (on the demand side). By introducing more flexibility into the system and greater incentives to the individual professionals, China is gradually improving both the training and the utilization of this scarce resource.

Although we hear much about difficulties associated with urban employment (or unemployment), in the long run, the more serious but less publicized problem for China is how well she will be able to provide gainful employment to the much larger rural labor force. In the past, surplus rural labor was hidden within the commune system and was impossible to estimate; now, however, it is reported to exceed 30 percent. In view of this frightening figure and with continued controls on migration into the cities, the basic question is how long can China's countryside act as a sponge for the excess manpower and what might happen when and if the countryside reaches a saturation point?

China's current rural labor force exceeds 320 million and is growing rapidly. Since even now there is about one-quarter of a hectare of farmland per able-bodied peasant, it is obvious that if China is to find a rational solution to the utilization of excess human resources in the countryside, it must be outside of agriculture. And this is exactly what the Chinese planners and policymakers are attempting to do.

Some of the current policies have been in effect since the 1960s, some have been modified, and some have been introduced fairly recently and are still experimental in nature. Economic diversification in the rural areas has been pursued for many years now. Briefly, the basic idea is to shift millions of peasants from grain production into forestry, animal husbandry, fisheries, a variety of subsidiary industries, the transporting of farm and sideline products, commerce, and service trades. Another change is to supplement collective economy with diversified economic forms, such as specialized households and, of course, the recently introduced production responsibility system, which makes it possible for individual households to assume responsibility for their own economic welfare. Chinese planners are also encouraging the use of villages and market towns as nuclei for local industrial, commercial and service enterprises, as well as for cultural, educational and health centers. Beijing hopes that in this way by the end of the century the country's agricultural population can be lowered to 60 percent of the total, without greatly increasing the size of established urban centers. Prerequisite to the achievement of these goals is improved education in the countryside. The objective is not only to enforce universal elementary education, but to increase the number of vocational and technical middle schools and to integrate them with employment opportunities. Finally, and perhaps the most difficult goal, is to move at least a part of the excess rural labor force into the mountainous areas, which may be rich in natural resources but lack labor. As unlikely as it is, the hope is that by offering the peasants adequate incentives, such as assigning them large tracts of land and letting them reap all the benefits of their labor, they will migrate voluntarily into the less fertile regions.

POSTSCRIPT

Chairman Mao was not a fence-sitter, but one of his less dogmatic pronouncements referred to China's population: "The population of our country is large. This is a good thing but, of course, there are also difficulties." And indeed, who can deny that China's human resources—which have almost doubled since Mao made this pronouncement—constitute both a national strength and a weakness. We need not become involved in the familiar discussion about man the producer and man the consumer to conclude that the management of human resources is now and will continue to be the most important and most difficult challenge faced by the Chinese leadership. Will China manage to control population growth and limit rural fertility, especially in times of rural advancement and relative prosperity? Will China be able to maintain a reasonable ratio between people and arable land and perhaps relieve some of the pressure in the most densely populated regions? Will China manage to modernize and mechanize without displacing additional manpower and adding to the already severe employment problems? In other words, will China be able to keep over half a billion people gainfully employed? Will China be able to raise the educational level of the people and, at the same time, satisfy the rising expectation of China's youth while immunizing them from the inevitable consequences of "spiritual pollution"? No one in China can answer these questions. Because most of the problems are set in perpetuity, there can be only partial solutions. It is encouraging, however, that China no longer pretends these problems do not exist and that the current leadership tends to approach them with considerable realism and common sense.

IMPLICATIONS OF CHINA'S 1982 CENSUS RESULTS

By Judith Banister* **

CONTENTS

Page
Highlights ... 160
Introduction ... 161
Age-Sex Structure ... 162
Total Population Size and Geographical Distribution ... 168
Marital Status and Fertility ... 171
Census Data on Mortality ... 173
Urban Population ... 175
Education and Literacy ... 178
Ethnic Composition ... 179
Conclusion ... 179
Notes ... 180
Bibliography ... 181

TABLES AND FIGURES

Table 1.—Age-sex Distribution of China's 1982 Census Population ... 162
Figure 1.—Reported Age-sex Structure from the 10 Percent Sample of 1982 Census Questionnaires ... 164
Table 2.—Reconstruction of Population Dynamics for China ... 165
Table 3.—Age-sex Structure of Cities, Towns, and Rural Population of China, 1982 Census Civilian Population ... 167
Figure 2.—Ever Married and Currently Married Population, 1982 Census ... 170
Table 4.—Fertility and Natural Increase by Province, 1981, from 1982 Census Questions ... 172
Table 5.—Mortality Change in China, 1973-75 to 1981 ... 173
Table 6.—Estimated Urban Population of China, 1949-83 ... 176

HIGHLIGHTS

China conducted a census at midyear 1982 after a hiatus of 18 years. The census was an enormous undertaking, not only because the world's largest national population was to be counted, but also because of ambitious plans to computerize census operations for the first time and emphasize accuracy to an extraordinary degree. The 1982 census updated important information that had been well assessed as of the 1964 census but not since, such as the age-sex structure, total population size, and ethnic composition. The latest census also gathered usable data on topics not well covered in the previous census—marital status, fertility, mortality, urban population, occupation, and employment. This article briefly analyzes the quality and usefulness of the statistics amassed in the 1982 census and concludes that the varied results of apparent good quality justify the resources expended on the census.

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**The interpretations and opinions expressed in this article are those of the author alone, and do not represent the policy of the United States Government or the U.S. Bureau of the Census.

INTRODUCTION

China conducted a modern census of the world's largest national population at midyear 1982 after several years of preparation.(1) It had been 18 years since China's previous census, and most of the intervening period had been filled with turmoil. An update on China's basic population figures was long overdue. Contributing to the delay had been Mao Zedong's deep suspicion and suppression of the entire field of demography, which was reinstated as an acceptable topic to study only in 1978 after Mao's death. The first research on population topics by China's own statisticians and demographers led to belated recognition that they had poor demographic data to work with and none at all for most purposes. Policy-makers and scholars badly needed accurate data on age-sex structure of the population, its fertility and mortality, marital status, urban population, ethnic distribution, occupation, employment, and many other topics.

Chinese leaders were very sensitive to criticism of the quality of China's statistics from outside China and from its own experts. They were determined to carry off a very high quality census, in order to collect good baseline data to use for economic and population planning. They called for international advice and assistance which were eagerly provided. They especially requested advanced IBM computers so that China could computerize its collected census data for the first time. Money was allocated by the United Nations Fund for Population Activities to pay for the computers and, after international export control hurdles were crossed, the computers were delivered with barely enough time to install them and train computer personnel before the census date. China allocated vast resources in the form of both census workers and money to plan, pretest, carry out, code, and tabulate the census data for this enormous population.(2)

The census succeeded in most of the basic tasks it was intended to accomplish.(3) It gathered an unprecedented quantity of useful statistics on many important topics for which the previous data base was seriously in error or just nonexistent. For instance, census data on the fertility of women by age and by province for 1981 were far more complete and accurate than the birth registration system had picked up for the same year. Census figures on the population's marital status filled the previous void of information on this important social indicator. Statistics from the census transformed the world's knowledge of the size and characteristics of China's urban population. The census gathered detailed data on each of China's 55 minority ethnic groups, so poorly understood before. Though it was already known that the country still had millions of illiterate and semi-literate people, the census measured the extent, sex composition, and age distribution of this persistent problem. Never before this census had China gathered usable data on the occupations of the working population and comprehensive figures on employment and unemployment by sex, age, and geographical location.

For some types of data, China had once had accurate information but it was woefully out-of-date and the 1982 census gave China reliable current information. For instance, China had gathered good statistics on the age-sex structure of the population, total population size, and provincial population distribution in the earlier censuses of 1953 and 1964, but updated information was needed. The country had carried out a mortality survey in 1976 that had documented China's pattern of mortality by age and sex for the years 1973–75, and the 1982 census asked the households to report any deaths in 1981, thus updating the earlier information on mortality. In general, the latest census filled many critical information vacuums, produced a few surprises, and confirmed some previous data whose level of completeness had been unknown. The wealth of useful information that the census produced has already justified the enormous effort put into it, and analysis of the full census results has barely begun. So far demographic analyses of the collected census data have shown this census to be of impressive quality when compared to other censuses around the world, and especially in comparison to the weak data base that China had depended on prior to the census.

AGE-SEX STRUCTURE

For over a decade and a half before the 1982 census, China had no accurate data available on the current age distribution of the population for each sex. Attempts to derive such information from the permanent population registration system had failed, and a 1978 survey that attempted to record the population's age-sex structure gave erroneous results. Census procedures emphasized the importance of getting ages accurately reported in completed years of age so the statistics could be used for demographic analysis without adjustments. If respondents reported their ages according to the Chinese traditional calendar, it was necessary for enumerators to adjust the answers they gave. Table 1 and Figure 1 show the age-sex structure of China's 1982 population based on the census. Because it is still Chinese government policy to withhold information on the age structure of the military, it was necessary to estimate their ages and add these estimates to the reported civilian age structure.

TABLE 1.—AGE-SEX DISTRIBUTION OF CHINA'S 1982 CENSUS POPULATION

Age group	Civilian population based on 10 percent sample of census returns			Estimated total age structure including the military		
	Total	Male	Female	Total	Male	Female
0 to 4	94,716,640	48,992,340	45,724,300	94,716,640	48,992,340	45,724,300
5 to 9	110,731,630	57,040,700	53,690,930	110,731,630	57,040,700	53,690,930
10 to 14	131,802,210	67,861,520	63,940,690	131,802,210	67,861,520	63,940,690
15 to 19	125,312,480	63,747,990	61,564,490	126,322,929	64,697,275	61,625,654
20 to 24	74,312,110	37,855,290	36,456,820	75,829,995	39,261,100	36,568,895
25 to 29	92,591,020	47,781,440	44,809,580	93,582,215	48,772,635	44,809,580
30 to 34	72,957,770	37,906,430	35,051,340	73,283,162	38,231,822	35,051,340
35 to 39	54,203,370	28,545,980	25,657,390	54,488,812	28,831,422	25,657,390
40 to 44	48,381,030	25,792,360	22,588,670	48,635,505	26,046,835	22,588,670
45 to 49	47,364,000	25,046,990	22,317,010	47,364,000	25,046,990	22,317,010
50 to 54	40,850,780	21,560,990	19,289,790	40,850,780	21,560,990	19,289,790
55 to 59	33,909,310	17,499,710	16,409,600	33,909,310	17,499,710	16,409,600
60 to 64	27,382,530	13,714,630	13,667,900	27,382,530	13,714,630	13,667,900
65 to 69	21,267,130	10,175,000	11,092,130	21,267,130	10,175,000	11,092,130
70 to 74	14,348,950	6,439,050	7,909,900	14,348,950	6,439,050	7,909,900

TABLE 1.—AGE-SEX DISTRIBUTION OF CHINA'S 1982 CENSUS POPULATION—Continued

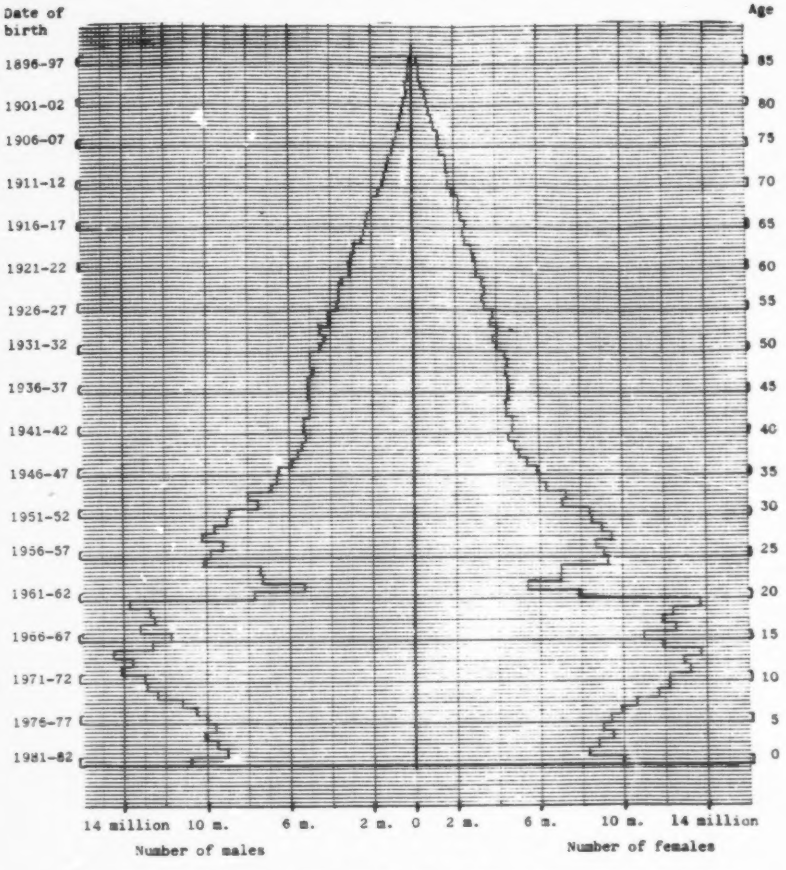
Age group	Civilian population based on 10 percent sample of census returns			Estimated total age structure including the military		
	Total	Male	Female	Total	Male	Female
75 to 79	8,608,540	3,497,630	5,110,910	8,608,540	3,497,630	5,110,910
80 +	5,050,950	1,763,720	3,287,230	5,050,950	1,763,720	3,287,230
Total	1,003,790,450	515,221,770	488,568,680	1,008,175,288	519,433,369	488,741,919

Note.—The unreported age structure of the military was estimated from the computer reconstruction of China's demographic trends presented in this article, using age-specific sex ratios in military ages as of 1982. Military personnel reportedly constituted 4,238,210 out of the total population of 1,008,175,288, so the civilian population should total 1,003,937,078. The differences between the two sets of column totals in Table 1 therefore do not accurately reflect the numbers of males and females in the military, reported to be 4,129,390 men and 108,820 women.

Sources.—State Council and SSB (1982), pp. 1-2, 15; and State Council and SSB (1983), pp. 264-273. This table was also presented and discussed in Banister (1984b), pp. 243-247.

Figure 1: Reported Age-Sex Structure

from the 10 Percent Sample of 1982 Census Questionnaires



Source: State Council and SSB (1983), pp. 264–73. This figure is presented and analyzed in greater detail in Banister (1986), Chapter 2.

Note: Military personnel are missing from the reported 1982 age structure.

Careful analysis of 1982 census statistics reported by age and sex has shown that age reporting in the census was remarkably accurate.(4) Calculation of census survival ratios for each single-year age cohort from the 1964 census to 1982 produces quite plausible levels and patterns of survival during the 18-year period for almost every age-sex group. This implies that age reporting in the 1964 and the 1982 censuses was highly accurate. It also implies that there were no significant undercounts or overcounts specific to any age-sex group in either of these two censuses, except possibly for young adult males. The nonreporting of military ages distorts the census survival ratios and makes it difficult to detect whether the censuses completely counted men in their late teens and twenties.

The high quality of the census age-sex structures has made it possible to reconstruct earlier trends in fertility and especially mortality with great confidence. For persons who were already alive in 1964 at each single year of age, the proportion of them still surviving in 1982 resulted directly from their intercensal level of mortality by age. At younger ages, Figure 1 shows that fertility decline in China after about 1970 produced smaller cohorts of children each year during the early 1970s. Continued decline in the number of births each year is visible among children born in the late 1970s, except for slight increase in the cohort born between midyear 1978 and midyear 1979. Large cohorts of women in the 1950s began childbearing at that time, thus dampening further reduction in the sizes of birth cohorts. In addition, the large number of babies counted in the census shows the surge of births after midyear 1981 caused by a surge of marriages in early 1981 and also by the pronatalist effects of introducing the production responsibility system in agriculture. The concentration of marriages resulted from the new marriage law beginning January 1, 1981, that had effectively reduced minimum legal marriage ages from the high minima enforced during the 1970s.

TABLE 2.—RECONSTRUCTION OF POPULATION DYNAMICS FOR CHINA

Year	Midyear population, in millions	Crude birth rate (per thousand)	Crude death rate (per thousand)	Natural population increase rate (per thousand)	Total fertility rate	Expectation of life at birth (years)	Infant mortality rate (per 1,000 births)
1953	584.2	42.2	25.8	16.5	6.06	40.3	175
1954	594.7	43.4	24.2	19.2	6.28	42.4	164
1955	606.7	43.0	22.3	20.7	6.26	44.6	154
1956	619.1	39.9	20.1	19.8	5.86	47.0	143
1957	633.2	43.3	18.1	25.1	6.40	49.5	132
1958	646.7	37.8	20.7	17.1	5.68	45.8	146
1959	654.3	28.5	22.1	6.5	4.31	42.5	160
1960	650.7	26.8	44.6	−17.8	4.02	24.6	284
1961	644.7	22.4	23.0	−.6	3.29	38.4	183
1962	653.3	41.0	14.0	27.0	6.03	53.0	89
1963	674.2	49.8	13.8	36.0	7.51	54.9	87
1964	696.1	40.3	12.5	27.8	6.18	57.1	86
1965	715.5	39.0	11.6	27.4	6.07	57.8	84
1966	735.9	39.8	11.1	28.7	6.26	58.6	83
1967	755.3	33.9	10.5	23.4	5.32	59.4	82
1968	776.2	41.0	10.1	30.9	6.45	60.3	81
1969	798.6	36.2	9.9	26.3	5.73	60.8	76
1970	820.4	37.0	9.5	27.4	5.82	61.4	70

TABLE 2.—RECONSTRUCTION OF POPULATION DYNAMICS FOR CHINA—Continued

Year	Midyear population, in millions	Crude birth rate (per thousand)	Crude death rate (per thousand)	Natural population increase rate (per thousand)	Total fertility rate	Expectation of life at birth (years)	Infant mortality rate (per 1,000 births)
1971	842.5	34.9	9.2	25.6	5.45	62.0	65
1972	863.4	32.5	8.9	23.6	4.99	62.6	60
1973	883.0	29.9	8.6	21.3	4.54	63.0	56
1974	901.3	28.1	8.3	19.8	4.17	63.4	52
1975	917.9	24.8	8.1	16.7	3.58	63.8	49
1976	932.7	23.1	7.8	15.2	3.23	64.2	45
1977	946.1	21.0	7.7	13.4	2.85	64.6	41
1978	958.8	20.7	7.5	13.2	2.72	65.1	37
1979	971.8	21.4	7.6	13.8	2.75	65.0	39
1980	983.4	17.6	7.7	10.0	2.24	64.9	42
1981	994.9	21.0	7.7	13.3	2.69	64.8	44
1982	1,008.2	21.1	7.9	13.2	2.71	64.7	46

Source.—Author's estimates based on the three censuses and the 1982 fertility survey. For further detail on the derivation of the reconstruction, comparisons with official data, and the breakdown by sex of the total population and mortality estimates, see Banister (1986), Chapters 2, 4, 8, and 10. See also Banister (1984a) and Banister (1984b).

As suggested by this brief overview, a complete count of a population with highly accurate reporting of age is a goldmine for reconstructing past demographic trends, and the age-sex structure already reported from the 10 percent sample tabulation of 1982 census questionnaries has proved valuable for this purpose. For example, Table 2 shows a computer reconstruction of China's population trends from 1953 to 1982 based on the three census age-sex structures, annual fertility data from a high quality retrospective fertility survey taken in 1982 after the census, and other available demographic information.(5) This reconstruction or another very much like it characterizes the country's demographic trends better than China's official series of birth rates, death rates, natural population increase rates, and infant mortality rates, because all these official rates underestimate actual fertility and mortality and are inconsistent with population growth from China's official series of annual population totals.(6) Release of the reconstruction presented in Table 2 has generated much interest, because the high death rates estimated here for the famine years 1958–61 associated with the Great Leap Forward imply about 30 million excess deaths during that historic crisis.(7)

Naturally, China's government took this census not in order to illuminate past demographic trends but primarily to accurately describe present population conditions and forecast likely future trends. It has been well used for the latter purposes already. Chinese and foreign demographers have utilized the 1982 census age-sex structure as the base population for population projections with alternate assumptions about future fertility trends. Census data on age-specific fertility and mortality rates provide the essential baseline information with which to begin population projections. Before 1982 census results became available, those who attempted to project alternative future population trends for China had to start from a hypothetical age-sex structure and use model age-specific fertility rates based on experience in other countries as well as model age-specific mortality rates based either on China's 1976 mortality survey or on model life tables. This was a tolerable procedure but not nearly so accurate nor so specific to the Chinese case as are projections now being made based on high quality census data.

When results are published from the 100 percent tabulation of census questionnaires, the age-sex structures of all the provinces will presumably be included, and perhaps the age distributions of smaller areas as well. The already published 10 percent sample results reported, in addition to the national age-sex structure, the age-sex distribution of the populations of all cities combined, of the towns as a unit, and of the total rural population, as shown in Table 3.(8) All three age structures show the effects of sharp fertility decline, since this phenomenon has not been confined to urban areas but has been seen in almost all rural areas as well. Therefore, in all three types of localities, the percent of the population in each five-year age group declines from ages 10-14 to ages 5-9, and again from ages 5-9 to ages 0-4. Fertility decline came first in the cities, followed by the towns and last by rural areas. Fertility decline began in the early 1960s in the cities and the level of fertility has stayed below that in towns ever since, judging from their respective age structures. The rural age structure shows that fertility began to decline in the early 1970s well after the towns and cities and the fertility level has remained highest there. As a result of the different timing and extent of the fertility declines, in each age group from 0-4 through 15-19, cities have a smaller proportion of their population than do towns, and towns have a smaller proportion than do the rural areas as a whole.

TABLE 3.—AGE-SEX STRUCTURE OF CITIES, TOWNS, AND RURAL POPULATION OF CHINA, 1982 CENSUS CIVILIAN POPULATION

Age group	Percent of population in age group			Sex ratio of age group (Males per 100 females)			
	Cities	Towns	Rural areas	Cities	Towns	Rural areas	Total (Unadjusted for military)
0 to 4	7.5	8.1	9.9	107.1	107.8	107.1	107.2
5 to 9	8.0	9.0	11.7	106.8	107.5	106.1	106.2
10 to 14	10.6	11.4	13.7	106.8	107.3	106.0	106.1
15 to 19	11.9	12.4	12.6	106.8	106.7	102.8	103.6
20 to 24	9.7	8.7	6.9	107.2	107.8	102.6	103.8
25 to 29	11.1	10.3	8.8	107.6	113.8	105.8	106.6
30 to 34	8.1	8.3	7.0	111.6	126.8	105.9	108.2
35 to 39	5.9	6.4	5.2	113.1	140.0	108.6	111.3
40 to 44	5.8	6.1	4.5	109.1	135.3	113.4	114.2
45 to 49	5.8	5.6	4.5	113.0	138.4	109.9	112.2
50 to 54	4.8	4.3	3.9	119.6	145.9	107.7	111.8
55 to 59	3.5	3.0	3.4	113.1	126.0	104.3	106.6
60 to 64	2.7	2.3	2.8	106.3	108.2	98.9	100.3
65 to 69	2.0	1.8	2.2	97.1	92.5	90.8	91.7
70 to 74	1.4	1.2	1.5	82.8	81.5	81.2	81.4
75 to 79	0.8	0.8	0.9	67.4	65.9	68.8	68.4
80 to 84	0.4	0.4	0.4	55.6	56.9	57.6	57.3
85 and over	0.1	0.1	0.1	41.3	44.2	45.2	44.5
Total	100.1	100.2	100.0	107.6	115.1	104.4	105.5

Note.—The military age structure is missing from all these age structures.

Source.—State Council and SSB (1983), pp. 264-303. Data also discussed in Goldstein (1984), pp. 32-36.

Data on the sex ratio by age in Table 3 show the effects of sex-specific migration in the decades prior to the 1982 census. Rural areas have the lowest total population sex ratio, 104.4 males per hundred females; cities have a higher sex ratio of 107.6; and towns have the very high sex ratio of 115.1 males per hundred females. The military population is almost all male and missing from these civilian age structures, and it is very likely that military units are stationed in all three types of localities. Therefore the actual sex ratios of the total population in cities, towns, and rural areas, and especially of the population in the peak military ages of the late teens and twenties, are probably higher than shown here. The cities appear to have received more male in-migrants than female from rural areas. City sex ratios are higher than rural ones for almost all age groups 15–19 through 65–69. The disparity is particularly great at ages 50–59, probably reflecting heavy migration to the cities that was disproportionately male during the 1950s when these cohorts were in their twenties and thirties. Since the 1950s, however, most would-be migration to the cities has been blocked by stringent controls on rural-to-city migration backed up by a rigid permanent population registration system, restrictive food rationing, and police harassment.(9)

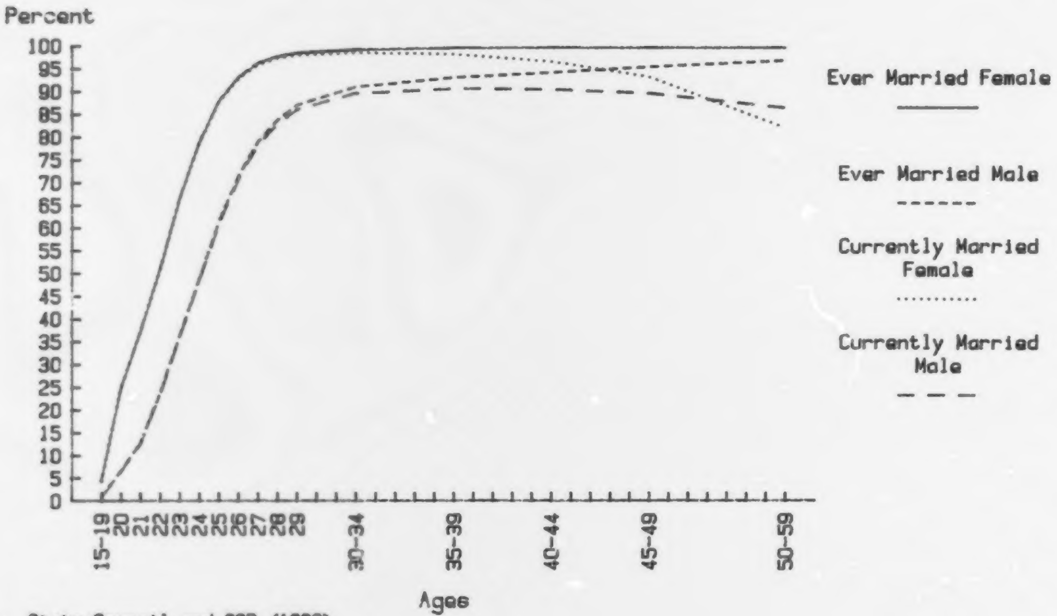
It is clear from Table 3 that the towns have received many male migrants from rural areas. Towns as a whole have higher sex ratios than rural areas in all age groups below age 75, but the disparity is most pronounced in the age groups 25–29 through 60–64. The high town sex ratios in adult working ages reflect China's policy of allowing migration of men from villages to some urban areas in order to work in industries, but refusing them the right to bring their families with them.(10) The wives and children remain in rural areas, and when the male workers from the villages age beyond their most productive years, they must return "home." Therefore, there is little evidence of sex-selective male migration to urban areas in the sex ratios of the elderly in the three types of localities.

TOTAL POPULATION SIZE AND GEOGRAPHICAL DISTRIBUTION

For decades, China has had a population registration system that attempts to register each person at one and only one place, his or her "permanent" residence. The main purposes of this system are control of people's movement, surveillance of some aspects of their behavior, and rationing of foods and cloth not in abundant supply. During the 1970s and early 1980s, there was some concern both in China and abroad that the registration system was accumulating errors in people's location because of people moving in spite of restrictions, overcounts of elderly people whose deaths had not been registered, and undercounts of children whose births had exceeded government restrictions on fertility. During 1981 and early 1982, attempts were made to correct all these errors in the permanent registers. In addition to correcting some errors of residence location, age, and so forth, registration workers deleted 6.10 million overcounts (double registrations and deceased persons) and added in 5.45 million persons who had been omitted from the registers. During the mid-1982 census operations, another 3.1 million overcounts and 2.7 million omissions were found and corrected.(11) Because the above errors approximately cancelled each other out, the final census count was very close to the total population size that would have been derived from the registers before the corrections were made.

Because the population of China remains very immobile geographically, and because many of those who do move are allowed or required to change their permanent registration to their new location, the census found that 98.9 percent of the counted population were registered at the place where they actually resided and that there was very little difference between provincial population sizes reported from the registers and from the census. Of the 11 million people whose residence and registration locations were not the same, 5 million were apparently registered nowhere while the rest were registered in one place while living in another.(12) The provision that allowed an unregistered person to be counted in the census improved the completeness of the census count over that from the registers, but the difference was quite small compared to the total population of over 1 billion persons. The evidence so far available, particularly the lack of any detectable significant overcounts or undercounts specific to any age for either sex, supports the assertion that China had approximately 1.008 billion persons at midyear 1982 as counted in the census.

FIGURE 2. Ever Married and Currently Married Population, 1982 Census



SOURCE: State Council and SSB (1983), pp. 402-403.

MARITAL STATUS AND FERTILITY

The census asked for the current marital status of all persons age 15 and older, a question not asked in the two previous censuses. Figure 2 shows that marriage remains almost universal in China today, just as was true in 1930. For example, by the time women had reached the age group 40–44, 99.9 percent had married in 1930 and in 1982, 99.8 percent. Men entered their first marriages at a slower pace than women at both dates, but by age 50–59, 96.8 percent of them had married in 1930 and 97.0 percent in 1982.(13) The biggest change in this half century was a significant rise in the mean age at first marriage for women and men. By the 1980s a very small proportion married in their teens. Women entered marriage quickly in their early twenties and men throughout their twenties. At age 29, 98.6 percent of women had already married and 87.1 percent of men. To supplement 1982 census data on the policy-relevant topics of marriage and fertility, the State Family Planning Commission in September 1982 carried out a nationwide sample fertility survey using census address codes for the sampling frame.(14) This retrospective survey found that the mean age at first marriage for women had risen slowly from 18.9 years of age in 1950 to 20.6 years old in 1970, then rapidly to 23.0 years old in 1979 under the pressure of China's required late marriage policy in that decade. When the government softened this policy to allow women to marry at age 20 and men at age 22, the mean age at marriage for women declined slightly to 22.7 years old in 1981.(15)

The census, followed by the fertility survey, gathered important statistics of unprecedented quality on fertility in China. The census asked household respondents about births during calendar year 1981 by age of mother and by the sex and parity of the child. Because it was suspected that families and local cadres had been avoiding the registration and reporting of births in order to meet stringent birth limitation guidelines, census publicity and enumerators emphasized to respondents that all 1981 births were to be reported whether previously concealed or not, and no repercussions would follow. The census was successful in obtaining more complete reporting of births than the vital registration system, the source of China's official birth and death rates, which had reported only 84 percent of the 1981 births recorded in the census. An official birth rate of 17.6 per thousand population had been derived from 1981 birth registration, and the census estimated a 1981 national birth rate of 20.9.(16) For many provinces the census showed that 15 or 20 percent of the 1981 births had been missed in the annual yearend reporting system, while some provinces had apparently achieved rather complete annual reporting of births.(17) Table 4 gives census data on fertility and natural population increase by province. As would be expected, great differences in fertility level are seen between the most urbanized and industrialized provinces at the low fertility end of the spectrum and provinces with a large proportion of their populations in minority groups at the high fertility end. Even so, it is noteworthy that every province's population had experienced significant fertility decline by then in comparison to a total fertility rate of about 5–7 births per woman in earlier decades.

TABLE 4.—FERTILITY AND NATURAL INCREASE BY PROVINCE, 1981, FROM 1982 CENSUS QUESTIONS

Province	Total fertility rate	Percent of births that are first born	Percent of births that are second born	Percent of births that are third born and above	Crude birth rate	Natural increase rate
People's Republic of China	2.584	47	26	27	20.9	14.6
Shanghai	1.316	87	12	1	16.1	9.7
Beijing	1.589	85	12	3	17.6	11.8
Tianjin	1.645	79	16	5	18.6	12.5
Liaoning	1.773	71	19	9	18.5	13.2
Jilin	1.842	60	25	15	17.7	12.4
Zhejiang	1.982	54	27	19	17.9	11.7
Heilongjiang	2.062	54	27	19	19.8	14.8
Jiangsu	2.076	61	26	13	18.5	12.4
Shandong	2.104	61	25	15	18.8	12.6
Shanxi	2.385	48	28	24	20.3	13.8
Shaanxi	2.394	50	26	24	20.4	13.3
Sichuan	2.434	57	24	19	18.0	10.9
Hubei	2.445	50	28	22	20.2	12.8
Inner Mongolia	2.621	44	26	29	23.1	17.3
Hebei	2.650	52	28	20	24.0	17.9
Henan	2.651	45	28	28	20.6	14.6
Fujian	2.717	41	30	29	22.1	16.2
Gansu	2.728	43	25	32	20.1	14.4
Jiangxi	2.790	37	28	35	20.4	13.9
Anhui	2.799	37	29	34	18.7	13.5
Hunan	2.833	43	31	26	21.1	14.1
Guangdong	3.283	37	28	35	25.0	19.5
Yunnan	3.814	28	23	48	25.4	16.8
Xinjiang	3.883	27	18	55	29.1	20.7
Qinghai	3.927	27	20	54	26.7	19.2
Guangxi	4.103	31	24	45	27.3	21.6
Ningxia	4.120	30	21	49	29.7	23.6
Guizhou	4.355	24	20	56	27.9	19.4
Tibet					31.1	21.1

Notes.—The total fertility rate is the average number of children who would be born alive to a woman during her lifetime if she were to live through all her childbearing years and conform to all the age-specific fertility rates of a given year. The crude birth rate is number of births per thousand population. The natural increase rate is the difference between the number of births and deaths per thousand population.

Sources.—"Third National Census (IV): Birthrate of Women of Child-Bearing Age," Beijing Review 27, no. 11 (Mar. 12, 1984), p. 23; State Council and SSB (1982), p. 22. These statistics are analyzed on a province-by-province basis in Banister (1986), Chapter 8.

Because the census and fertility survey highlighted the problem of underreporting in the birth registration system, the State Statistical Bureau instituted an annual representative survey of population change to interview households about births and deaths in the previous calendar year. The surveys estimated a 1982 birth rate of 21.09 births per thousand population and a 1983 birth rate of 18.62.(18) Based on the latter survey, China's population was growing at just over one percent a year in 1983, a population growth rate common in developed countries but very low by developing country standards. One might assume that official provincial birth rates are now based on some similar survey of vital rates, since for most provinces the vital registration system has been shown to be seriously inadequate. Indeed, some provinces have instituted a survey for estimating their annual birth, death, and natural increase rates. But most provinces have resumed the reporting of their official vital rates from vital registration, thus making it appear that they have achieved sharp declines in their birth rates and natural increase rates in comparison to the census data for 1981 given in Table 4. Although these post-census statistics exaggerate the birth rate declines, the populations in a majority of provinces appear to have experienced further fertility decline in 1983.(19)

Census Data on Mortality

Deaths during calendar year 1981 were reported by respondents in the households of the decedents to census enumerators, who then gathered further information on the age and sex of the deceased. These data were used to construct 1981 life tables for the national population as a whole and separately by sex. These life tables are valuable for documenting China's unique pattern of mortality by age and sex and for generating assumptions about future mortality in China for use in population projections. Never before has nationwide mortality information been available for one point in time. The previous attempt to collect such data, China's massive Cancer Epidemiology Survey, began in 1976 but dragged on in several populous provinces for years. Male and female life tables have been published for the three-year period 1973–75 based on mortality data from provinces covering 76 percent of the country's total population. Table 5 uses those life tables to represent China's overall mortality in 1973–75 in order to show how mortality changed at each age by 1981. This comparison indicates that mortality declined at all ages up to age 65 for men and 70 for women, with the greatest improvements among infants, children up through age 14, and in the middle age groups 30–49. Deterioration in mortality conditions is shown among the elderly.

TABLE 5.—MORTALITY CHANGE IN CHINA, 1973–75 TO 1981

Age	Probability of dying, q_x, by age					
	Male			Female		
	1973–75	1981	Percent change	1973–75	1981	Percent change
0	0.048928	0.035561	−27.3	0.042789	0.033724	−21.2
1 to 4	0.035426	0.015999	−54.8	0.036258	0.017780	−51.0
5 to 9	0.011468	0.006502	−43.3	0.010511	0.005374	−48.9
10 to 14	0.005042	0.003935	−22.0	0.004228	0.003294	−22.1
15 to 19	0.005482	0.005409	−1.3	0.004780	0.004655	−2.6
20 to 24	0.007378	0.007077	−4.1	0.007259	0.006674	−8.1
25 to 29	0.007844	0.007289	−7.1	0.008509	0.007374	−13.3
30 to 34	0.009937	0.008809	−11.4	0.010375	0.008425	−18.8
35 to 39	0.014195	0.012152	−14.4	0.013901	0.010812	−22.2
40 to 44	0.020348	0.017427	−14.4	0.018533	0.014453	−22.0
45 to 49	0.030626	0.026531	−13.4	0.025289	0.020972	−17.1
50 to 54	0.048064	0.043107	−10.3	0.038046	0.032658	−14.2
55 to 59	0.074083	0.069907	−5.6	0.056022	0.050049	−10.7
60 to 64	0.119083	0.116481	−2.2	0.091404	0.082858	−9.3
65 to 69	0.171990	0.177205	3.0	0.134592	0.127532	−5.2
70 to 74	0.263287	0.277138	5.3	0.207382	0.207566	0.1
75 to 79	0.383129	0.390904	2.0	0.307169	0.303765	−1.1
80 to 84	0.534136	0.558238	4.5	0.439795	0.468197	6.5

Notes.—The 1973–75 life tables are based on all reported deaths for 3 years in 24 provinces that include 76 percent of China's total population. Therefore they do not fully represent the country at that time but they are the only available life tables that can even approximate the PRC mortality patterns for any date before 1981. The 1981 life tables are based on 1982 census questions concerning deaths in each household during calendar year 1981.

Sources.—Rong Shoude et al. (1981), pp. 25–26; and Jiang Zhenghua et al. (1984), pp. 15–16.

Before exploring the reasons for these changes in mortality, it is necessary to investigate whether the mortality statistics are accurate for both dates. The available evidence indicates that the Cancer Survey, like the vital registration system on which it was based, missed 10-20 percent of deaths in 1973-75, and the problem of underreporting was seen for decedents younger than the early thirties and above the late fifties.(20) For 1981 it is not yet possible to test for completeness of death reporting because the necessary data have not been released. The 1981 crude death rate derived from the census was low, 6.36 deaths per thousand population, close to the death rates derived from the vital registration system that has routinely missed ten or twenty percent of deaths. The subsequent annual surveys of population change have produced death rate estimates that appear more complete than the census, 6.60 for 1982 and 7.08 for 1983. It is not prudent to assume that 1981 deaths were completely reported in the census, though this is possible. If any deaths were omitted, the ages of the decedents are not known, except perhaps for female infant deaths. The census recorded 1981 infant mortality rates of 35.6 deaths per thousand male live births and 33.7 for females, as shown in Table 5. This pattern of a slightly lower female than male infant mortality rate is about what would be expected in the absence of the female infanticide widely reported in the Chinese press to have accompanied the one-child program. This suggests either that the number of infanticide deaths is not statistically significant or that respondents avoided reporting this illegal act to census enumerators.

With the above considerations in mind, let us look at mortality changes in China between 1973-75 and 1981. Comparing the infant mortality reported from the survey and from the census, the latter not taking into account any female infanticide, in this short period of about 7 years there was striking improvement in infant mortality from other causes. The probability of dying in the age groups 1-4 and 5-9 was approximately halved, and great improvements were also seen in mortality at ages 10-14. Based on the data at hand, reductions in mortality in the young adult ages 15-19 through 25-29 were modest. Deaths to men in their thirties and forties were somewhat reduced while women benefited even more at these ages. The apparent deterioration of mortality conditions at upper ages may be real or may be spurious because of underreporting of deaths among the elderly in 1973-75.

What caused these mortality declines that were concentrated in certain age groups? The sharp fertility decline in China during the 1970s would be expected to reduce infant mortality because childbearing largely ceased among women in their teens and forties, ages of childbearing at which infants are at greatest risk. It may also be that couples restricted to one or two children are more attentive to the health and safety of these few precious offspring. The amazing reduction in childhood mortality could not have come about without amelioration of the incidence of deaths from those causes that were most prominent in 1973-75: respiratory and infectious diseases, accidents, and digestive diseases.(21) China has reported in the late 1970s marked success in preventing diphtheria, pertussis, polio, measles, acute encephalitis, malaria, and epidemic meningitis.(22)

Since no great improvement was seen in the mortality of adults ages 55 and above, we can assume that China had little success against the leading causes of death at those ages: circulatory disease, respiratory disease, and cancer. Mortality declines among people in their thirties and forties may have come from a reduction of deaths from other leading causes such as tuberculosis, digestive disease, and accidents. Even though deaths may have been underreported in the 1982 census, the recording of deaths by sex and age was clearly useful for describing China's pattern of mortality and showing how mortality changed in the decade of the 1970s in the world's most populous country.

URBAN POPULATION

For two decades before the 1982 census, China barely released any statistics on its urban population, and those that were released were perplexing and contradictory.(23) In the late 1970s China was officially reporting that only 12-14 percent of the total population lived in urban areas, about the same as the urban proportion reported from the 1953 census. It was obvious that these figures did not accurately portray the urbanization that China had experienced in three decades of economic development. Now it is known that the problem was one of definition—the "urban" population being reported was those people who possessed permanent registration status in a city or town and who were entitled to commercial grain rations. "Temporary" residents in urban areas and the "agricultural" population living inside urban boundaries—these were broadly defined categories—were excluded from the urban population. Therefore the "urban" population of yearend 1981, before the 1982 census, was reported to be only 138.7 million, 13.9 percent of China's total population.(24)

During census planning it became clear that a different definition of urban was required if China's urban population data were to be comparable to data from other countries and useful for assessment of worldwide urbanization trends. So the census included in the urban population all persons, no matter what their occupation or household registration status or grain ration status, who had actually resided within the formal boundaries of a city district or town for a year or more. This was a much more realistic definition than had previously prevailed, but it was still a somewhat restrictive definition because it excluded suburban populations outside formal city boundaries no matter how urbanized, and excluded the populations of towns that had not been accorded formal status as "urban places."(25) The census reported that at midyear 1982, China had a civilian urban population of 206.6 million, equivalent to 20.6 percent of the total civilian population. The size of the urban military population was not reported or included. In order to compare the urban populations of the 1964 and 1982 censuses, the State Statistical Bureau went back to 1964 census data and added the "agricultural" population of urban places, thus raising the estimate of China's 1964 urban population from 97.9 million to 127.1 million, that is from 14.2 percent to 18.4 percent of the civilian total.(26)

A necessary follow-up task was to go back to annual yearend data from the permanent population registration system and recalculate each year's urban population in order to produce a complete series showing China's urban population trends. The official results of this process are given in Table 6. The series is actually still based on two different urban definitions, one supposedly in use in the 1950s through yearend 1963, and the other the 1982 census definition used to recalculate data from midyear 1964 and after. Something appears to be wrong with the urban population figures for yearend 1962 and 1963; they seem to be underestimates of the actual urban population of the time. The sudden shift from an urban total of 116.5 million at yearend 1963 to 127.1 million at midyear 1964 looks like a statistical artifact and should not be taken seriously.(27)

TABLE 6.—ESTIMATED URBAN POPULATION OF CHINA, 1949–83

Year	Census midyear urban population in thousands	SSB reconstruction, yearend urban population, in thousands	Percent urban as reported, yearend
1949		57,650	10.6
1950		61,690	11.2
1951		66,320	11.8
1952		71,630	12.5
1953	77,257	78,260	13.3
1954		82,490	13.7
1955		82,850	13.5
1956		91,850	14.6
1957		99,490	15.4
1958		107,210	16.2
1959		123,710	18.4
1960		130,730	19.7
1961		127,070	19.3
1962		116,590	17.3
1963		116,460	16.8
1964	127,103	129,500	18.4
1965		130,450	18.0
1966		133,130	17.9
1967		135,480	17.7
1968		138,380	17.6
1969		141,170	17.5
1970		144,240	17.4
1971		147,110	17.3
1972		149,350	17.1
1973		153,450	17.2
1974		155,950	17.2
1975		160,300	17.3
1976		163,410	17.4
1977		166,690	17.6
1978		172,450	17.9
1979		184,950	19.0
1980		191,400	19.4
1981		201,710	20.2
1982	206,589	211,540	20.8
1983		241,260	23.5

Note.—Data are unavailable on what proportion of China's military population live in urban areas, but at least for the years 1982 and 1983, the SSB's reconstruction of the urban population total includes the entire military population.

Table 6 shows that China experienced rapid urbanization in the 1950s but that after 1960 urban population growth was stopped for a time, then held down to very modest annual increases such that the urban percent of China's total population dropped from 19.7 percent in 1960 to 18.4 percent in 1964 to a low of 17.1 percent in 1972.(28) The de-urbanization of China during that 12-year period was caused primarily by the forced removal of urban residents to the countryside. After the government had allowed around 25 million people to enter urban areas during the Great Leap Forward, it attempted to send millions of them back to the countryside in the early 1960s. Then during and after the Cultural Revolution, national policy was to send urban educated youth (a total of 14-17 million) to rural and frontier areas, and to send out urban professionals for extended periods of learning from the peasants. Also contributing to the declining proportion of China's population in urban areas was the sharp reduction of urban fertility in the mid-1960s while rural fertility stayed high, causing higher rural than urban natural population increase, and the continuation of China's rather effective barriers to migration from rural to urban areas.(29)

The urban proportion of China's population increased very slowly in the period 1972-76, then started increasing more quickly after Mao Zedong's death in late 1976 as the sent-down youth and professionals began returning to urban areas with or without permission, and as new graduates of urban middle schools refused to move to rural areas.(30) In the early 1980s, China's government has somewhat relaxed the ideological opposition to urbanization that characterized the previous two decades. Economists have noted that the new production responsibility system in agriculture has highlighted the problem of surplus labor in rural areas, and that this excess labor must be employed somehow.(31) One outlet is to allow rural-to-urban migration for those peasants who can fill a perceived need in towns and small cities, for instance to be self-employed in retail sales, repair work, or other services.(32)

Table 6 shows an increase in China's urban population of 10 million in 1981 and another 10 million in 1982, then a sudden jump of 30 million in calendar year 1983. No official explanation for this shift is yet available. One possibility is that, as 1982 census data were processed, it was discovered that numerous towns qualified to be urban places or that the urbanized populations of some cities had expanded far beyond their formal boundaries and the boundaries may have been enlarged accordingly. It was reported that 44 municipalities were newly established in 1983.(33) An expansion of boundaries to incorporate formerly "rural" populations could have been involved. In addition, significant rural-to-urban migration may have been allowed, especially to market towns and to small and medium-sized cities, as part of the new economic policies being implemented. Finally, China is conducting an experiment to replace prefectural governments with a system of coordinating county governments from a large municipal center.(34) This more direct control by cities of their surrounding countryside may contribute to urbanization. In spite of the urbanization now taking place, however, China remains a highly rural country and continues to avoid the over-urbanization common in developing countries.

EDUCATION AND LITERACY

Both the 1964 and 1982 censuses asked respondents about literacy and educational attainment, but the questionnaire simply asked for the "educational level" of persons age 6 and above. There was no differentiation between someone who had attended primary school for one month and someone who had graduated from primary school but not gone on to middle school; both were classified at the primary school level. In addition, one who never received formal schooling but considered himself literate could report primary or higher educational level. Everyone age 6 and above had to be categorized at a level of education or as illiterate but not both because these categories were mutually exclusive. The same question was apparently asked in both the 1964 and 1982 censuses, facilitating comparisons over time. The absolute number of illiterate and semi-literate people in China stayed about the same—233.3 million in 1964 and 235.8 million in 1982—but declined from 33.7 percent to 23.5 percent of the total civilian population.(35) The problem of illiteracy varied greatly by province, as might be expected. In 1982 the most urbanized and industrialized provinces had the lowest rates of illiteracy but none below 15 percent of the population age 12 and above. In seven provinces, over 40 percent of the population age 12 and above were recorded as illiterate or semi-literate. Except for Anhui, all the provinces in this category had sizable minority group populations. The only province where illiterate and semi-literate persons constituted over half the population age 12 and above was Tibet at 75 percent.(36)

Illiteracy is a much more widespread problem among women than men. Of the women age 12 and above, 45 percent were illiterate or semi-literate in 1982 compared to 19 percent of men age 12 and older. The disparity is great at all ages, even among young adults. Of persons age 25–29, for example, 10 percent of men but 36 percent of women were illiterate or semi-literate. At ages 13 and 14, 5 percent of boys but 15 percent of girls remained illiterate. Because of the way the census questions on education and literacy were worded, anyone who had attended primary school at all would have been categorized at the primary school educational level and not as illiterate. Therefore, these data imply that the proportion of girls who have never entered elementary school is three times the proportion of boys.(37) The apparent reasons for this difference are, first, that in a patrilocal society parents perceive the education of sons as far more important to them than the education of daughters who will marry into another family and village anyhow, and second, that girls are kept at home to tend to siblings and household chores while boys are not.

Between 1964 and 1982 there was great expansion in China's educational system, in spite of the intervening Cultural Revolution that had temporarily devastated higher education. The university-level population increased from 3 million to 6 million in this 18-year period. Much more impressive was that the number of people who had attended senior middle school increased from 9 million in 1964 to 66 million in 1982. The population of those who had entered junior middle school but not gone on to higher education was 32 million in 1964 but 178 million in 1982, representing a vast expansion of educational opportunity at this level. The number who had reached but not passed primary school level increased from 196 million in 1964 to 355 million in 1982. Therefore, of the 1964 population, 240 million persons had received some education, 82 percent of them only primary education; those who had experienced some education increased to a total of 606 million in 1982, of whom 59 percent had gone only to primary school but 41 percent had gone beyond.(38) Major investments in primary and middle school education in rural as well as urban areas were required to produce this result.

ETHNIC COMPOSITION

The first two censuses had counted China's minority group and majority Han Chinese populations, but in the long intercensal period from 1964 to 1982 data on the minorities deteriorated. A 1978 attempt to compile statistics on the minority groups, presumably from the permanent population registration system, underestimated the minority population as a whole and especially those groups that were partially assimilated.(39) The 1982 census counted 67 million persons in the 55 officially recognized minority nationalities, constituting 6.7 percent of China's total population.(40) Tabulation of a ten percent sample of census questionnaires allocated the population of each minority group by province of residence, data unavailable before.(41) This showed, for instance, that only 2 percent of Guangdong's population belonged to minority groups while 94 percent of Tibet's civilian population was Tibetan, 1 percent other minorities, and only 5 percent Han Chinese. Detailed statistics were also provided on the education and literacy status of each minority nationality, and some information on the occupations of the members of each minority group was compiled. After decades when China's minority peoples were neither well understood nor particularly well treated, the government is now trying to develop more enlightened policies suitable to each minority group based in part on the unprecedented compilation of knowledge about the minorities from the census.

CONCLUSION

The 1982 census transformed world knowledge of the demography of China because of the high quality and the variety of data gathered by the census and released with admirable speed. After decades of suppressed information on the world's most populous country, the flood of very useful census data has been a refreshing change for analysts trying to understand not only China's but also the world's demographic situation. Census planners, to their obvious satisfaction, achieved much of what they set out to do. In the case of particular topics on which policy-makers wanted further information, the government arranged to supplement the census with a more focused survey such as the 1982 national fertility survey. The wealth of important information gathered by China's 1982 census justifies the expenditure of resources that went into it.

NOTES

1. Aird (1982); Li Chengrui (1984). See also PRC State Statistical Bureau, *Proceedings of the International Seminar on China's 1982 Population Census*. Beijing, forthcoming 1986.

2. Li Chengrui (1984), pp. 17–23.

3. Li Chengrui (1983); Banister (1984a, 1984b, 1985); Banister (1986), Chapter 2.

4. Coale (1984); Banister (1986), Chapter 2.

5. For fertility data, see Fertility Survey (1983).

6. Evidence for this assertion is given in Banister (1984b) and Banister (1986).

7. Banister (1984a); Rind (1984); and Broening (1984).

8. Refer to Goldstein (1984) for further analysis of these age-sex structures.

9. On the history of rural-to-urban and urban-to-rural migration since the early 1950s, see Banister (1986), Chapter 9.

10. This is discussed in Zhou Qichang (1981); Goldstein (1984); and Banister (1986), Chapter 9.

11. Li Chengrui (1983), p. 337; and Li Chengrui (1984), p. 23.

12. State Council and SSB (1982), pp. 10–11.

13. Barclay et al. (1976), pp. 609–610 and 632–633; and Banister (1984b), pp. 247–249.

14. For details see Fertility Survey (1983).

15. Calculated from Fertility Survey (1983), pp. 167–169. For further analysis of marriage age in China, see Coale (1984), pp. 39–45; and Banister (1986), Chapter 6.

16. Hu Huanyong and Zhang Shanyu (1982), p. 392; and State Council and SSB (1982), p. 2.

17. Birth statistics for 1981 from vital registration and from the census were compared for individual provinces in Banister (1986), Chapter 8.

18. Communique on 1982 Economic Plan (1983), p. K16; and Communique on 1983 Economic Plan (1984), p. K14.

19. See Banister (1986), Chapter 8, for assessment of vital rate data reported from each province through about 1983 and other information relevant to fertility through 1984. See also John Aird's article in this volume on family planning policies of the early 1980s.

20. Banister and Preston (1981); Coale (1984), pp. 6–7, 29–31, and 64–70; and Banister (1986), Chapter 4.

21. Cancer Investigation Report (1980), Table 2-2; and Banister (1986), Chapter 4.

22. On health trends in China see Banister (1986), Chapter 3.

23. Orleans (1982).

24. Statistical Yearbook of China 1981 (1982), p. 89.

25. Li Chengrui (1983), pp. 331–332.

26. Shen Yimin (1982), p. 25; and State Council and SSB (1986), p. 3.

27. At the Workshop on China's 1982 Population Census held in Honolulu in December 1984, Mr. Sun Jingxin, Director of the Department of Population Statistics of China's State Statistical Bureau, indicated that the SSB is working on adjusting the pre-

1964 urban figures to accord with the 1982 census definition and plans to issue a revised series when the task is completed.

28. Documented and discussed in Banister (1986), Chapter 9.

29. However, some 13-14 million peasants were recruited to work in urban areas during 1966-76, thus moderating the de-urbanization trend. See note 30 of the article in this volume by Jeffrey Taylor.

30. Documented and explained in Banister (1986), Chapter 9.

31. See Section IV.C of the article by Jeffrey Taylor in this volume.

32. "Yixie nongmin zili kouliang jin chengzhen luohu ban dian ban chang" (Some peasants take care of their own food grain and settle down in urban places to run stores and factories), *Renmin ribao* (People's Daily), Feb. 16, 1984, p. 3.

33. "Quanguo chengshi zongshu yi da 289-ge" (The number of municipalities in China has reached 289), *Jingji dili* (Economic geography), no. 3 (Aug. 1984), p. 240.

34. "Cities to Administer Nearby Counties," *Beijing Review* 26, no. 14 (April 4, 1983), pp. 6-7; "Liaoning's Administrative System of Counties Under Cities Reviewed," *Joint Publications Research Service*, no. 83697 (June 16, 1983), pp. 8-13; and "Jingji guanli Discusses Role of Central Cities," *Joint Publications Research Service*, no. 84262 (Sept 7, 1983), pp. 1-9.

35. State Council and SSB (1982), p. 3 and p. 64. Literacy data are missing for the military at both dates. Illiteracy data were reported for the population age 13 and above in 1964, compared to age 12 and above in 1982. According to the 1982 census definition, those who knew fewer than 1,500 characters and therefore could not read simple language books or newspapers or write a simple message were to be considered illiterate or semi-literate.

36. State Council and SSB (1983), pp. 10-11.

37. State Council and SSB (1983), pp. 316-317.

38. State Council and SSB (1982), pp. 2-3 and p. 64.

39. Analyzed in Banister (1986), Chapter 9.

40. State Council and SSB (1982), p. 2.

41. State Council and SSB (1983), pp. 212-225.

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COERCION IN FAMILY PLANNING: CAUSES, METHODS, AND CONSEQUENCES

By John S. Aird[*] [**]

CONTENTS

Page

Summary 184

Introduction 185

Chinese Justifications 186

Evidence of Popular Resistance 190

  Resistance among the people 190

  Illegal IUD removals 191

  The resurgence of female infanticide 192

  Abuse of family planning cadres 193

  Cadre resistance 194

Coercive Measures 194

  Pressures on the cadres 195

  Pressures on the people 196

  Alternating Escalations and Remissions 199

  The 1978 anti-coercion campaign 199

  The escalation of 1979 200

  The anti-coercion campaign of 1980–81 202

  Escalation and confusion in 1981–82 203

  Mandatory birth control surgery in 1983 204

  Slight moderation and ambivalence in 1984 206

The Case of Huiyang Prefecture 208

Foreign Views on the Coercion Issue 211

  Chinese statements for foreign consumption 211

  The response of foreign observers 212

The Consequences of Sudden Fertility Reduction 217

SUMMARY

The undeniable effectiveness of the Chinese family planning program owes much to its coerciveness. From Chinese sources it is clear that many people comply because they have no choice. The Chinese authorities insist that strict control of population growth is essential not just for China's modernization but to assure adequate food, clothing, housing, health, and employment for the people. But limiting families to one child violates traditional family values still deeply entrenched. It also means that many parents will have no one to look after them in old age. They resist the policy by spreading rumors, removing IUDs without permission, destroying female infants in the hope of having a son, and direct hostile acts against

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[*] The analyses and interpretations ventured in this chapter are those of the author and do not necessarily coincide with the official views of the U.S. Government. To save space, extensive source citations contained in the original manuscript have been deleted from this version. Additional sources are available from the author on request.

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family planning workers. Many cadres share the attitudes of the people and are reluctant to enforce the program.

To overcome this resistance, the authorities maintain extreme pressures both on the cadres and on couples of childbearing age. Cadres are penalized for failure to meet targets or for allowing couples to have unauthorized children. People who get pregnant without permission are lectured, harassed, publicly humiliated, fined, deprived of contract land, denied food, water, and electricity and "mobilized" to have abortions. In the peak year of coerciveness, 1983, the central authorities ordered that all couples with two or more children be sterilized, all women with one child have IUDs inserted, and all unauthorized pregnancies be aborted. The escalation of coercion has not been steady. Periods of intensive coercion have alternated with periods of partial remission, when the central authorities disavowed coercive measures and blamed them on the local cadres. The case of Huiyang Prefecture, Guangdong Province, shows how coercive tactics approved by the central and provincial authorities can be represented in the media as examples of "patient and meticulous ideological work."

In communications addressed to foreigners, the Chinese central authorities insist that they disapprove of coercion and quickly put a stop to it wherever it is discovered. This claim has not deceived most foreign reporters in China but it has been widely accepted as gospel by representatives of organizations advocating control of population growth, who have lavishly praised the Chinese effort. In 1983, the United Nations gave one of its first population awards to the head of China's State Family Planning Commission, which the Chinese authorities cited as proof that the whole world approved and supported the program. The United Nations Fund for Population Activities has a continuing multi-million dollar program of assistance to China, including projects supporting family planning, despite a provision in its charter prohibiting aid for coercive family planning programs.

Some of the immediate consequences of reduced fertility in China are salutary, such as the easing of pressures on school enrollments and employment opportunities, but some of the long-range effects may be more problematical. Chinese demographers have expressed concern about the rapid aging of the population in the next century and the serious social security burden that is in prospect. Other Chinese are worried about a generation of pampered only children growing up to be willful, selfish, undisciplined, and ill-adapted to life under socialism. If the economic gains promised the people in return for surrendering a part of their parenthood fail to materialize, an undercurrent of disillusionment with profound political implications could result. The responsibility for coercion in the Chinese program rests not only with the Party leaders who directed the progam and the Chinese demographers who rationalized it but also with the foreign agencies and individuals who applauded and encouraged it.

INTRODUCTION

Since the early 1970s, the People's Republic of China has been pursuing what has proved to be the most successful national family planning program the world has ever seen. Its effectiveness can be demonstrated beyond all doubt from the official population data. But exactly why the Chinese have been successful in an undertaking in which many other developing countries have made little headway is a matter of sharp dispute. Official spokesmen have attributed China's success mainly to persuasive propaganda and an efficient delivery system for family planning services. They tell foreign audiences that the people of China recognize the benefits of family limitation both to the state and to themselves, that they support the family planning program, and that they practice birth control voluntarily. However, the overwhelming weight of the evidence from within China makes it abundantly clear that the program is compulsory and that most people comply because they have no choice.

In foreign circles, the debate over whether or not the Chinese family planning program is coercive is mainly between representatives of the mass media, who have repeatedly drawn attention to its inhumane tactics, its violations of human rights, and its human costs, and the representatives of organizations advocating control of population growth, who frequently echo the Chinese claims and sometimes add their own testimonials that the program is purely voluntary. A realistic appraisal of the Chinese program is important not only for China but also for international organizations offering family planning assistance and other developing countries that might consider following the Chinese example. Some of the methods used to promote the program have posed value conflicts not only for the Chinese but for foreign organizations and foreign governments. For China the coercive tactics and their demographic results have economic, social, and political consequences that may cause acute distress in the future and could threaten the stability of the government. International organizations that identify themselves too closely with the Chinese program without regard to the fact that it violates their own principles about freedom of choice in contraception compromise their own credibility and may bring discredit on the cause of worldwide control of population growth. Countries that attempt to emulate the Chinese example without understanding what has really been happening in China risk a costly failure that could have severe political reverberations for them as well.

To understand the Chinese family planning program, it is necessary to enquire into the reasons why the Chinese leadership decided to impose it on their people, the extent of popular resistance, the tactics that have been used, the misrepresentations of the program by foreign apologists, and its possible future consequences for China.

CHINESE JUSTIFICATIONS

Compulsory family planning is not the first unpopular program to be imposed on the Chinese people by their political leaders, but unlike the collectivization drive of the middle 1950s, the Big Leap Forward of the later 1950s, and the Cultural Revolution of the middle 1960s, family planning entailed government intervention in some of the most intimate aspects of family life and violated deeply rooted convictions that had been part of Chinese culture for thousands of years. Opposition has therefore been strong not only among workers and peasants but within the Chinese Communist Party and government administrative system as well.

Ideologically inclined Party members have a double reason for their reluctance to embrace family planning. To orthodox Marxists, even to concede a need to control population growth in China was ideological heresy, tantamount to rejecting Marx in favor of Malthus.[1] At the founding of the PRC in 1949, Mao denied that population growth could cause problems for economic development and insisted that China's large population would be an asset because it meant abundant labor and labor was the source of all wealth. His confidence was apparently shaken by the results of the 1953 census, which showed a population 100 million larger than expected, and a tentative birth control program was started in 1956, mainly in the cities. Before it could achieve any results, Mao launched the Big Leap Forward under the illusion that political enthusiasm could unleash an enormous upsurge of productivity among China's workers and peasants, enabling the country to overtake the most advanced nations within a few years. Birth control was promptly abandoned. After the Big Leap Forward collapsed in a major famine in 1958–61 that caused some 30 million unnecessary deaths, a second birth control campaign was launched in 1962.[2] This continued until it was interrupted by another political upheaval, the Cultural Revolution, in 1966, before fertility levels in rural areas could be much affected. In 1969, after the ensuing turmoil was finally brought under control, family planning efforts were resumed and have continued with mounting intensity ever since.

Why did the Chinese leadership make family planning a matter of national policy and pursue it with increasing compulsion despite both cultural and ideological predispositions to the contrary? None of the reasons stated publicly during the first and second birth control campaigns seem urgent enough to explain the priority assigned to the program. In the first campaign, the rationale was that birth control was for the health of mothers and children and to help China more quickly overcome poverty and backwardness. However, in 1957 Mao had proudly expressed deep concern about the country's ability to feed a rapidly growing population, and the statistical fiction that grain production had doubled in 1958 suggests that concern about food was the main reason for the program. In the second campaign, the health argument was the most prominent; again, fears about food were not mentioned, perhaps because after the massive famine of 1958–61 food problems were too sensitive for public discussion.[3]

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[1] The eighteenth century British economist, Thomas Robert Malthus, argued that population tended to outgrow the means of subsistence unless checked by war, famine, or pestilence. Marx vehemently denounced Malthus but failed to develop a population theory of his own. Many later Marxists assumed that population growth was a sign of national prosperity and denied that socialist countries would ever need birth control.

[2] The actual magnitude of the losses can only be estimated, but most estimates are around 30 million. See the interview with Judith Banister reported in Stephens Broening, "The Death of 30 Million Chinese," *The Baltimore Sun*, April 26, 1984, p. A19; Ansley J. Coale, *Rapid Population Change in China, 1952–1982*, Committee on Population and Demography, Report No. 27, National Academy Press, Washington, D.C., 1984, pp. 68–70; and Basil Ashton, Kenneth Hill, Alan Piazza, and Robin Zeitz, "Famine in China, 1958–61," *Population and Development Review*, Vol. 10, No. 4, December 1984, p. 614.

When the third campaign began, economic arguments were more prominent, but food problems were still dismissed as of little concern. However, by 1978 it was acknowledged that arable land per capita had declined since the 1950s and that food grain per capita in 1977 was at the same level as in 1955.[4] In 1979, it was revealed that food grain per capita had actually decreased since 1957,[5] that food was short in some rural areas, and that for the country as a whole food was still "a big problem."[6] From 1979 onward, the arguments for control of population growth became more explicit and urgent. It was said that population pressures had created problems in meeting people's needs for clothing, housing, transportation, education, medical care, and employment, and had contributed to environmental pollution, disturbed the ecological balance, and severely damaged the country's natural resources. Some parts of the country were said to be already overpopulated, and surplus labor complicated the problems of unemployment in the cities and underemployment in the rural areas, accounting in part for the low level of productivity of Chinese labor.

These arguments have a certain plausibility and closely resemble the arguments used by advocates of family planning in other developing countries. Few demographers or economists would question China's need to curb population growth; it is inconceivable that a country of one billion people needs more mouths and hands. But the critical questions are what degree of control is required for the national welfare, how quickly it must be attained, and at what cost to other human values. Some Chinese sources imply that disaster is imminent unless absolute control is achieved in very short order. An "open letter" issued by the Party Central Committee in September 1980 contains one of the more moderate warnings:

> If the population is not brought under control within the next 20 or 30 years, . . . this will cause great difficulties for the four modernizations and create a grave situation in which there will be little hope of improving people's living standards.[7]

Other Chinese sources have gone much farther, arguing that if the population plan is not implemented all other plans will fail,[8] that the "stability and unity of society" will be threatened,[9] that it is urgent to get to zero population growth as soon as possible,[10] that the one child policy is the only choice for China,[11] that China must control population growth strictly or not at all,[12] and that it is not the Party but "objective conditions" in the country that makes it impossible for people to have more children.[13]

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[3] For a discussion of the rationale used in the first and second birth control campaigns, see John S. Aird, "Population Policy and Demographic Prospects in the People's Republic of China," in Joint Economic Committee, Congress of the United States, *People's Republic of China: An Economic Assessment*, U.S. Government Printing Office, Washington, D.C., 1972, pp. 225–244 and 275–294.

[4] By Hu Qiaomu, president of the Chinese Academy of Social Sciences, in an article entitled "Act in Accordance with Economic Laws; Step Up the Four Modernizations," published in *Renmin ribao (People's Daily) (RMRB)*, October 6, 1978, XINHUA, Beijing, October 5, 1978, Foreign Broadcast Information Service (FBIS), No. 197, October 11, 1978, p. E17.

[5] Luo Weixiong, "The Current State of Chinese Agriculture and Our Historical Experience in Developing Agriculture," excerpts cited by Beijing radio, Domestic Service, February 14, 1979, FBIS, No. 34, February 16, 1979, p. E12.

[6] Commentator, "It Is a Major Task to Do a Good Job of Summer Grain Procurement," Haikou radio, Hainan Island Regional Service, May 22, 1979, FBIS, No. 102, May 24, 1979, p. P1.

[7] XINHUA, Beijing, September 25, 1980, FBIS, No. 189, September 26, 1980, p. L2.

[8] Nanchang radio, Jiangxi Provincial Service, August 15, 1980, FBIS, No. 164, August 21, 1980, p. O5.

[9] Wu Cangping, Some Population Problems that Should Be Deliberated at an Early Date," *Shijie jingji daobao (World Economic Report) (SJJJDB)*, Shanghai, No. 165, December 12, 1983, FBIS, No. 8, January 12, 1984. p. K4.

The argument that China has no choice but to implement the extreme family planning measures now in force has never been supported by substantial evidence or cogent reasons. In the nature of the case, it is probably not possible to adduce such an argument. International experience does not show a close correlation between the rate of population growth and the rate of economic development. One American demographer says that population growth is less significant for development then the transfer of technology, of social, political, and legal institutions, and of human knowledge in general, and that the "doomsday" rhetoric so popular among international population control advocates will not bear close examination.[14]

In fact, the Chinese leaders are not forced by circumstances to limit their people to one child per family. They have made other choices in the recent past, including a three child and a two child limit, and they have also talked of reverting to the two child limit some time after the turn of the century. They have often revised their targets and timetables. Even if the one child policy were prerequisite to keeping the population under 1.2 billion by the year 2000, or to achieving the four modernizations on schedule, or to quadrupling the gross national product by the end of the century, none of these goals is an absolute necessity to which the wishes of the people must be sacrificed. But the Party leaders have shown a tendency to represent their major programs as historical imperatives. They did so with land reform and with collectivization in the 1950s, and when these programs encountered popular opposition and began to lag, they unleashed the full administrative power of the state to speed their implementation. In the case of family planning, the use of coercive means seems to derive not from demonstrable necessity but from the knowledge, based on past experience, that such means can bring quick results.

Nevertheless, although the central authorities may not really believe that a demographic crisis is as imminent or as certain as they sometimes claim, there is no question that they regard the control of population growth as essential to their plans for China's economic development. Unless they had been convinced of its importance, they would not have taken the unusual step of acknowledging that

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[10] Tian Xueyuan, "On the Question of the Growing Percentage of Old People," *RMRB*, March 18, 1980, Joint Publications Research Service (JPRS), No. 75,693, May 14, 1980. p. 69.

[11] Liu Zheng, "Laogu shuli yu jihua kongzhi renkou zengzhang de chanlue zixiang" ("Firmly Establish the Strategic Ideology of Planned Control of Population Growth"), *RMRB*, February 5, 1980, p. 5; and Wu Cangping, "Tigao jihua shengyu xuanchuan de kexuexing" ("Raise the Scientific Nature of the Propaganda on Family Planning"), *RMRB*, April 1, 1983, p. 5.

[12] Zhao Ziyang, "Report on the Work of the Government," delivered at the Fourth Session of the Fifth National People's Congress, November 30, 1981, XINHUA-English, Beijing, December 14, 1981.

[13] "Give Priority to Propaganda and Education in the Work of Family Planning," *RMRB*, September 29, 1981, FBIS, No. 192, October 5, 1981, p. K6.

[14] Samuel H. Preston, "Are World Population Trends a Problem?" remarks prepared for presentation to the American Enterprise Institute for Public Policy Research, Washington, D.C., December 5, 1984, p. 5.

China's past failure to deal with population problems was a mistake for which the Party itself was to blame.[15] In 1979, the Party made a gracious, though rather belated, apology to Prof. Ma Yinchu, former president of Beijing University, whom Party spokesmen had silenced with "merciless criticisms" when he tried to warn of the dangers of uncontrolled population growth in the late 1950s. Recently, some Chinese writers have made it clear that the main reason for the Party's failure to heed Ma's warnings was opposition from Mao Zedong.[16] In effect, the Party leaders were admitting that because of the Party's past mistakes, population problems were more acute and more difficult to solve and valuable time had been lost. Only profound concern would have induced them to make this confession.

Evidence of Popular Resistance

The coerciveness of the Chinese family planning program has resulted directly from the conflict between the Party's determination to restrict population growth and the resistance of the people to the demands that they limit their families, especially to the extreme limitation demanded of them since the beginning of 1979. What proportion of Chinese couples in the childbearing ages comply with the requirements of the program voluntarily and what proportion continue to resist or surrender against their will cannot be determined exactly from the evidence available publicly, but there can be no doubt that both popular resistence and involuntary compliance are extensive.

RESISTANCE AMONG THE PEOPLE

Statements in the Chinese media about popular resistance and voluntary compliance seem at first glance to be completely contradictory. On the one hand, there are categorical assertions that birth control is "the demand of the masses," a "reflection of popular desires," "supported by the overwhelming majority," and "the wish of the people," but on the other hand it is conceded that the policy is not accepted by "all the people," that the masses do not consider it "something to adopt voluntarily," and that getting their cooperation is "a long-term task." Many sources mention the persistence of traditional ideas that "having many sons brings happiness," that a son is needed to "carry on the family line," and that, especially for rural famililes, sons are essential for support in old age.

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[15] In 1982 Qian Xinzhong said that "the Party is very much at fault" in not coming to grips earlier with the population problem and that this was one of the reasons why it was now so difficult to eliminate poverty and backwardness in China. See "Quanguo jihua shengyu bangongshi zhuren peixunban jieyu Qian Xinzhong qiangdiao bixu zhuajin jiejue renkou wenti" ("Training for Directors of Family Planning Offices in the Country Concluded; Qian Zinzhong Emphasizes That Close Attention Must Be Given to Solving the Population Problem"), *Xinhua ribao (New China Daily) (XHRB)*, Nanjing, May 28, 1982, p. 3.

[16] For example, at a discussion meeting in 1979 convened by the State Council's Birth Planning Office, "some comrades" noted that the attack on Ma's population theory was based on the idea that more people meant "more views and enthusiasm," obviously a reference to Mao's 1958 statement that "The more people, the more views and suggestions, and the more intense the fervor and the greater the energy." For the comments of the "commrades," see XINHUA, Beijing, June 8, 1979, FBIS, No. 115, June 13, 1979, p. L16. In 1982, Bo Yibo, in a speech to a national planning conference, noted that in the 1950's Ma, Shao Lizi, and Zhou Enlai all favored birth control, but, "after the appearance of the saying that 'a large population is a good thing,' all people believed it blindly." This is a reference to Mao's September 1949 declaration that "It is a very good thing that China has a big population," which was quoted throughout the 1950's, even while family planning was being promoted. For Bo's speech, see Bo Yibo, "Kongzhi renkou yao tong shixian fan liangfan de zhanlue mubiao tong bu jinxing" ("Population Control Must March in Step with the Strategic Target of Quadrupling Output"), *Jiankang bao (Health Gazette) (JKB)*, November 28, 1982, pp. 1–2.

The explanation of the contradiction is that the Party leaders have always maintained as a matter of ideological precept that they act in the interests of the people and therefore their leadership expresses the will of the people. One purpose of this claim is to legitimize the authority of the leadership, but another is to deny that there could be extensive opposition to Party policies, however unpopular, and thus to deny that coercive means are required or are being used to secure the compliance of the people. In the case of family planning, popular opposition to the one child family has been widespread, strong, and remarkably resilient. It is clear that on this issue there is a profound conflict of interest between the needs and wishes to individual families and those of the Party and the state.

Overt resistance takes many different forms. One of the mildest is the circulation of rumors that the policy is about to be abandoned or the requirements eased. Such rumors were widespread in 1980, 1981, and 1984, evoking emphatic denials in the media. More aggressive are the instances of "sabotage" of family planning by people who organize popular resistance, "sow discord," "refuse to be controlled," and falsify certificates and records relating to birth control surgery. The type of "sabotage" most often mentioned in the Chinese press is the "illegal" removal of intrauterine devices by persons who operate outside the regular medical system.

"ILLEGAL" IUD REMOVALS

The surreptitious removal of IUDs was evidently very widespread and was strongly denounced in the press in 1981 and 1983. For the most part, the people engaged in these activities, who were known as "hook wielders" or "hookers," were not medically trained, but some were herbalists, midwives, or regular medical personnel moonlighting for extra money. Lacking the right equipment, they used steel or lead wires, bicycle spokes, or bamboo strips to extract the IUDs, and as a result some women suffered infections, punctures of the uterus, or hemorrhages, sometimes leading to permanent injury or death. The numbers of cases cited in local sources justify official complaints that the "illegal" removals constituted a major rebellion against the family planning program. Yunnan Province reported 9,600 cases in just 6 counties during 1980, and in one Yunnan commune, of 2,100 women fitted with IUDs, 650 had been removed. In 1983, a Sichuan county reported that since 1980 more than 10,000 women had "stealthily removed their IUDs." Several brigade reports in 1981 indicated 80 percent and 100 percent removal rates. Obviously, women resorted to the "hookers" because the regular medical personnel would not take out IUDs on request. This implies that the retention, if not the original insertion, of the IUDs was against their will. Evidently a high proportion of women with IUDs were willing to put their health and even their lives at risk to have another child without permission from the authorities.

THE RESURGENCE OF FEMALE INFANTICIDE

A still more extreme reaction to compulsory family planning, and especially to the one child limit, was the revival of female infanticide in China after 1979. The problem was mentioned in the Chinese media in 1980, but at first the authorities showed no great concern about it. However, during 1982 their attitude changed. In November 1982, an article in the newspaper *China Youth Gazette* sounded an unmistakable cry of alarm, warning that if infanticide were not stopped it could seriously unbalance the sex ratio, with the result that in 20 years' time "a large number of young men will be without spouses." The article called upon the whole of Chinese society to "save the baby girls.[17] Immediately a press campaign was launched to condemn female infanticide and the maltreatment of women who bore girl babies. The avowed intent of the campaign was to arouse public opinion. The press described the problem as "serious," "grave," and "intolerable," and foresaw an "insoluble" and even an "unimaginable" problem in the future if the trend were not checked. Among the guilty were not just the masses but cadres and Party and Youth League members as well. According to media reports, unwanted female infants were suffocated, strangled, or drowned at birth, sometimes in a bucket of water placed beside the delivery bed, or they were later thrown down wells or into ponds, buried alive, or abandoned under bridges, in fields, by riversides, in railway stations, hospitals, or public toilets. Women who bore daughters were somtimes ostracized, abused, beaten, divorced, or driven to suicide.

Instances of infanticide were said to be "frequent" and even "rampant" in some localities. Local figures were cited to show that a significant distortion of sex ratios among newborns was already occurring in some areas. According to one report, the sex ratio among newborns was 154 males per 100 females in a street in Wuhan Municipality and 503 in a Hubei village. Another cited brigade figures in which males accounted for 60 to 70 percent of all births, and a report from Guangdong Province said that in some brigades the ratio of male to female births was as high as 7 or 8 to 1. In such small units, random variation in the sex ratio at birth can be considerable, hence it is not clear to what extent the apparent imbalance reflected female infanticide, but a survey conducted by the Anhui Provincial Women's Federation disclosed a sex ratio at birth in one Anhui county of 139 in 1981; in several communes of that county the ratios were in the range from 165 to 175.[18] These figures imply that between 25 and 40 percent of the expected numbers of female infants were missing. According to the 1982 census, the sex ratio of births in Anhui Province in 1981 was higher than for any other province—112.45 males per 100 females, and the figures for the whole country implied a sex ratio at birth in 1981 of 108.47. If the actual sex ratio was around 106 male births per 100 female, as is normal for many Western and Asian populations, including the Chinese, some 230,000 female infants were not accounted for. Failure to report the births of girls who were still alive at the time of the census may be part of the explanation for the statistical imbalance, but one Chinese source says that the cause in Anhui was female infanticide.[19] Several Chinese sources linked the infanticide problem with the one child policy.[20]

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[17] "Jiujiu nuying" ("Save the Baby Girls"), *Zhongguo qingnian bao (China Youth Gazette)*; November 9, 1982, p. 3.

[18] "Investigation Conducted by Anhui Provincial Women's Federation Shows the Seriousness of the Situation of Drowning Baby Girls in Rural Areas and the Resulting Disproportion Between Male and Female Babies," *RMRB*, April 7, 1983, FBIS, No. 68, April 7, 1983, pp. K5–6.

When the foreign press began to repeat what the Chinese media were saying about female infanticide and its connection with the one child policy, Chinese sources suddenly began to deny the seriousness of the problem. Cases of infanticide were said to be "few in number" and to "occur from time to time in a few places," and other statistical data, sometimes irrelevant to the issue, were cited to show that sex ratios in China were "normal" and in no danger of becoming unbalanced.[21] Some Chinese sources denied any relationship between family planning and infanticide,[22] and Qian Xinzhong, then Minister in Charge of the State Family Planning Commission, argued that the one child policy had not caused infanticide in China because that was a problem that had existed long before,[23] ignoring indications that infanticide had been in abeyance for 30 years and had rebounded only when the one child policy was imposed. Although the Chinese press has not said much about the subject since the latter part of 1983, it is quite likely that the problem became more serious in 1982 and 1983, as the enforcement of the one child limit intensified.

ABUSE OF FAMILY PLANNING CADRES

The most direct form of popular resistance to family planning demands was hostile actions against the family planning cadres. Some of the actions were relatively mild, such as refusing to be told what to do, being "obstinate," rebuffing the cadres with the "cold shoulder" treatment, or simply taking offense at their ministrations, yet these tactics were enough to make many cadres hesitant about pushing the work, which they described as "the most difficult under heaven." Other forms of popular resistance were much less subtle. In the more extreme cases, the cadres were verbally abused, physically beaten, or killed, and their crops and property were sabotaged."[24] In 1982 it was reported that, in an experi-

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[19] Zhang Wansong et al., "Yinger xingbili shitiao yao qieshi jiuzheng" ("Effective Steps Must Be Taken Against the Disproportion in the Sex Ratio at Birth"), *Shehui* (*Society*), April 20, 1983, p. 29.

[20] "Sex discrimination incompatible with socialist principles," *China Daily* (*CD*), March 2, 1983, p. 4; and Zou Ping, "Guanyu Beijingshi chusheng yinger xingbiebi de diaocha" ("A Survey of the Sex Ratio at Birth of Beijing Municipality"), *Renkou yanjiu* (*Population Research*), No. 4, July 29, 1983, p. 36.

[21] XINHUA-English, Beijing, April 15, 1983, FBIS, No. 75, April 18, 1983, p. K8; Beijing radio, Domestic Service, April 18, 1983, FBIS, No. 78, April 21, 1983, p. K7: and "Rudongxian renkou shengyulu chouyang diaocha zhengming jihua shengyu bu daozhi xingbiebi shitiao" ("Sample Fertility Survey Carried Out in Rudong County Shows that Family Planning Does Not Lead to Imbalance in the Sex Ratio"), *JKB*, May 19, 1983, p. 1.

[22] For example, an article in the journal *Health Gazette* asserted that "there is no inevitable link" between female infanticide and family planning. See Commentator, "Zhongguo renmin de jihua shengyu gongzuo burong waiqu" ("Distortions About the Family Planning Work of the Chinese People Are Not Allowed"), *JKB*, May 5, 1983, p. 1.

[23] XINHUA-English, Beijing, September 23, 1983, FBIS, No. 188, September 27, 1983, p. K9.

[24] "Sheng jihua shengyu bangongshi jiu dangqian cunzai de wenti tichu cuoshi" ("The Hebei Provincial Family Planning Office Proposed Measures in View of Current Problems"), *Hebei ribao* (*Hebei Daily*), Shijiazhuang, September 28, 1981, p. 1; Song Youtian, "Guanyu jihua sheng-

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mental election of local magistrates in which more than one candidate for each office was permitted, none of those elected was a woman, because all of the women candidates had been identified with family planning work, which the people resented.[25] It was necessary to provide the family planning cadres with special legal protection and to encourage them to be brave and continue their work in spite of the attacks on them.

CADRE RESISTANCE

The local cadres themselves sometimes ignored or actively resisted the family planning requirements imposed on them from above, a matter regarded by the central authorities as very serious, because if the local cadres did not enforce the policy, it made no progress. Some cadres simply did not understand the policy, did not think that the rate of population growth mattered very much, or regarded family planning as a "soft" task—less urgent than such "hard" tasks as attaining production quotas. Some were in disagreement with the policy, considered it too extreme, thought family planning work should attempt to eliminate third and higher birth orders but not hold everyone to just one child, wanted more latitude for permitting second births, or charged that the one child policy was a "leftist" idea. Some cadres simply paid no attention to family planning, adopted a laissez faire attitude, or responded to the demands from above with much talk but little action. Some were said to be sympathetic with the peasants' desires for more children and therefore neglected family planning.

Many cadres were unwilling to limit their own families, despite the fact that they were supposed to take the lead in order to set an example for the people. When leading cadres had additional children in violation of the policy, the masses used them as "shields" and followed suit. Hence the Chinese media repeatedly publicized individual cases of cadres who were severely punished for noncompliance with family planning requirements. Some were dismissed from their posts and expelled from the Party.[26]

Coercive Measures

Because of the widespread resistance among both the cadres and the people, propaganda and persuasion alone could not bring about the sudden reduction in fertility needed to attain the announced target figures for population growth. Strong administrative pres-

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yu gongzuo qingkuang de baogao" ("Report on Family Planning Work"), *Shaanxi ribao* (*Shaanxi Daily*), Xian, March 9, 1982, p. 3; "Cheng Shuyan xuanchuan jihua shengyu jiazhong bei za" ("The Home of Cheng Shuyan Was Smashed for Publicizing Family Planning"), *Liaoning ribao* (*Liaoning Daily*) (*LNRB*), Shenyang, January 11, 1983, p. 1; Chengdu radio, Sichuan Provincial Service, January 15, 1983, JPRS, No. 82,842, February 10, 1983, p. 178; and Michael Weisskopf, "Abortion Tears at Fabric of China's Society," *The Washington Post*, January 7, 1985, p. A20.

[25] "Birthrate called bigger challenge than quadrupling," *CD*, December 2, 1982, p. 3.

[26] In 1980, a Tianjin news item said that there were some Party members and cadres who had openly expressed the feeling that they would "rather give up Party membership than not have a son." See Commentator, "Dangyuan ganbu yao zuo jihua shengyu de daitouren" ("Party Members and Cadres Must Be the Leaders in Practicing Family Planning"), *Tianjin ribao* (*Tianjin Daily*), Tianjin, February 13, 1980, p. 1. Some have actually paid the penalty. See for example Guangzhou radio, Guangdong Provincial Service, January 29, 1982, JPRS, No. 80,051, February 8, 1982, pp. 59-60; and "Zhao Wenru ju bu jihua shengyu bei kaichu dangji" ("Zhao Wenru Refuses to Practice Family Planning and Is Expelled from the Party"), *RMRB*, January 28, 1983, p. 4.

sures had to be exerted on leaders and functionaries of the Party and government at all levels and through them on the masses of the people. This was no simple matter. The Chinese administrative system is authoritarian, driven mainly by commands from the top, but it is also a bureaucracy. Its personnel have their own purposes to serve which are not always consonant with those of the top leadership, and conflicts sometimes arise, especially in connection with the execution of unpopular policies like compulsory family planning, which place the cadres in a difficult position. To effectuate such policies, it is necessary to develop special incentives, disincentives, and monitoring systems to ensure implementation.

PRESSURES ON THE CADRES

Initially, the central authorities tried to induce the lower levels to take action by issuing commands and directives. The language used was extremely aggressive and seemed to intimate that administrative power was to be used liberally to secure the compliance of the reluctant masses. In the middle 1970s, family planning instructions were called "battle directives," told the lower levels to treat family planning work as part of the "class struggle," called for "a complete dictatorship over the capitalist class," in which "bourgeois rights" were to be restricted, and referred to all opponents as "class enemies." Local cadres were to "grasp" family planning work "firmly," "tightly," "seriously," "vigorously," "fiercely," and "relentlessly." However difficult, population control was said to be "urgent," "imperative," "indispensable," and "an essential task." In 1978, local Party secretaries across the country were directed to take personal command of the work and mobilize the whole Party apparatus for the purpose. Having issued this order, the central authorities could hold the local Party leaders accountable if the work did not progress, and indeed they did. "Why is it," the *People's Daily* asked in 1981, "that the birth rates and natural population growth rates in some places have fallen below the general requirements while they are still high in other places? . . . The reasons lie in the leadership." [27] The "requirements" were set by the central and provincial authorities, at first in the form of target natural increase rates and subsequently target birth rates and population totals, percentages of sterilizations, abortion rates, percentages of eligible couples contracepting, and other measures. Leaders of units that did not meet their targets could expect to be dressed down and humiliated at periodic family planning report meetings and occasionally in the provincial or the national press.

Still, responsibility during the 1970s, tended to be rather diffused and hard to fix. Sometimes the cadres were severely punished for their laxity, as, for example, when more than 100 Party and municipal officials in a Guizhou city who had failed to enforce birth control were required to undergo vasectomies or tubal ligations in May 1980, according to a Japanese report.[28] The punishment of individual cadres who failed to set a good example by practicing family planning themselves may have disposed the cadres to be less lenient with the violators among the masses. But such cases were too scattered to have a uniform effect throughout the administrative system. A major change in cadre accountability came in 1981, when the "cadre job responsibility system" was established, under which cadres were rewarded or punished according to how well they met their job requirements. For many cadres, family planning work was included in the periodic evaluations. In one locality, cadres who failed to prevent "unplanned" (i.e., unauthorized) births could lose up to 20 percent of their basic subsidy for the year.[29] In another, 10 percent of the year's bonus or wage supplement was deducted from the remuneration of basic level cadres for each "unplanned" birth in their commune, brigade, or production team.[30] In some places, cadres were assigned a certain number of households each and penalized if any of "their" households failed to practice family planning.[31] After the cadre responsibility system was set up, many localities reported that "the sense of responsibility of the cadres at all levels has been strengthened." Under such pressures as these, the cadres have only three choices if the people in their units will not comply voluntarily with family planning requirements: accept the penalties, falsify the reported data, or resort to coercion.

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[27] "Sustained Efforts Are Needed in Planned Parenthood Work," *RMRB*, January 27, 1981, FBIS, No. 28, February 11, 1981, p. L19.

[28] KYODO, Beijing, June 25, 1980, FBIS, No. 126, June 27, 1980, p. Q1.

PRESSURES ON THE PEOPLE

Long before the pressures on the cadres had been systematized to such a degree, some cadres had already been resorting to coercive measures. They found that propaganda was time-consuming and did not get the quick results demanded by their superiors and that a show of force was more effective. From time to time, the central authorities condemned the local expedients in what seemed to be deliberately obscure terms. They warned against relying on "compulsory orders," "indigenous policies," "bumpkin policies," "forcing everybody to do the same thing," "oversimplified and crude methods," doing things in a "crude and brutal manner," using "punitive methods," adopting "hard and rigid rules," imposing "administrative measures of a forcible type," and "resorting to coercion and commandism." Exactly what kinds of practices were alluded to in these admonitions was not made clear in the public media, but the particulars were probably provided in directives not made public. Injunctions against "hard and fast rules" and "forcing everybody to do the same thing" probably referred to such practices as forcing all women to use IUDs even if they were successfully using contraceptive pills or forcing women with IUDs to submit to tubal ligations. "Indigenous" policies may refer to practices such as those condemned in a national newspaper in December 1978:

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[29] Yang Zhonghao, "Guanghan, Xinduxian shixing ganbu gangwei zerenzhi de diaocha" ("An Investigation of the Implementation of the Tentative Cadre Job Responsibility System in Guanghan and Xindu Counties"), *Jingji guanli* (*Economic Management*), No. 4, April 15, 1982, pp. 76–79.

[30] "Gaozhan gongshe shixing 'sanguagou' jihua shengyu chuxian xin jumian" ("Gaozhan Commune's Family Planning Has a New Breakthrough After Practicing the 'Three-Hook-Up' "), *Sichuan ribao* (*Sichuan Daily*) (*SCRB*), Chengdu, April 24, 1982, p. 1.

[31] "Defengxian quanmian jianli renkou shengchan zerenzhi" ("Defeng County Establishes Population and Production Responsibility Systems"), *XHRB*, June 19, 1982, p. 4; "Qidingshan gongshe jianli jihua shengyu zerenzhi" ("Qidingshan Commune Establishes a Family Planning Responsibility System"), *LNRB*, January 3, 1983, p. 1; and "Jiu youguan nongcun jihua shengyu wenti da duzhe wen" ("Questions and Answers on the Problems of Rural Family Planning"), *LNRB*, January 6, 1983, p. 3.

> Some localities popularizing birth control have dispatched "militia propaganda teams" to those households that did not practice birth control to "propagandize" and exercise control over their food, drinking water, and workpoints. These local laws have caused great dissatisfaction among the people.[32]

However, the Chinese family planning authorities have shown no hesitation about approving and commending for emulation around the country some local tactics that would be recognized as coercive in most other parts of the world. One that has been widely used since the beginning of the current birth control campaign is the mass "mobilization" of the people to practice contraception, have IUDs inserted, have abortions or be sterilized. These are often carried out in connection with crash campaigns designed to "whip up a new upsurge" in family planning or to eliminate an anticipated upsurge in births. What sort of activities may be used to "mobilize" people is not made explicit in public sources, but they are obviously sufficiently forceful that the people caught up in the "mobilizations" have little chance of refusing what is demanded of them. This explains the occasional reports that people flee their homes before an impending "mobilization" and go into hiding.[33] The distinction between persuasion and "mobilization" was explained to a foreign visitor in 1981 by a local family planning worker as follows:

> Mobilization is different from persuasion. We persuade people to do this or that. But we mobilize people to do this or that when we fail to persuade them in spite of our efforts. Hopefully they will understand later.[34]

Another approved coercive method is the so-called "heart-to-heart" talks between family planning cadres and couples who refuse to abort an unauthorized pregnancy or be sterilized, which may be repeated as many as 20 times until the couples give in. In a Hebei commune, couples who refused to sign a pledge not to have a second child were subjected to nightly visits by local officials, one of whom predicted flatly that "everybody is going to sign the pledge."[35] A Beijing teacher and her husband held out against the onslaught of uninvited visitors trying to "persuade" her to have an abortion, but after two months of harassment by as many as six visitors a day, the woman finally submitted to abortion in her fifth month of pregnancy. The method used by the visitors, according to the foreign reporter who obtained the story, is to "threaten, cajole, harass, educate, and plead . . . and, when all else fails, resort to coercion."[36]

The imposition of severe economic penalties on couples that have unauthorized children also amounts to approved coercion. The penalties have been specified in a series of family planning regulations adopted by most of the provinces between 1979 and 1982.[37] As different provinces issued their laws, the provisions got stiffer. The Anhui regulations passed in April 1979 provided that urban and rural couples that had a third child would lose five percent of their wages from two weeks after the birth until the child was 14; for a fourth child the penalty was 6 percent and for the fifth 7 percent, and so on. Shanghai deducted 10 percent from birth to age 16 and allowed no additional housing or private plots for additional children. Gansu made it 10 percent of a couple's income for an unauthorized second child from birth to age 10 and 15 percent for an unauthorized third child from birth to age 16. Shanxi added a one-time penalty of 20 percent of the family's annual wages for refusal to abort an unauthorized second pregnancy and 30 percent for a third. To reinforce these regulations and family planning requirements in general, the central authorities included a new provision in the national constitution in 1982 stating that "Both husband and wife have a duty to practice family planning."[38]

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[32] "Some Current Problems in Drafting Laws," *Guangming ribao (Guangming Daily) (GMRB)*, December 22, 1978, FBIS, No. 3, January 4, 1979, p. E7. This item also implies that Chinese references to "propaganda" may cover actions that are actually coercive.

[33] Changsha radio, Hunan Provincial Service, September 23, 1979, FBIS, No. 188, September 26, 1979, pp. P2–3; and Michael Weisskopf, *loc. cit.*

[34] Quoted in Pi-chao Chen, *Rural Health and Birth Planning in China*, International Fertility Research Program, Research Triangle Park, North Carolina, 1981, p. 44.

[35] Jay Mathews, "China Pressures Couples to Have Only One Child," *The Washington Post*, February 28, 1980, p. A20.

[36] Amanda Bennett, "China Cajoles Families and Offers Incentives to Reduce the Birth Rate," *The Wall Street Journal*, July 6, 1983, p. 23.

As the "production responsibility system" spread throughout rural China in 1981 and peasants were authorized to become "wealthy" through their own enterprise, the economic penalties in the provincial family planning laws lost most of their deterrent power and the cadres found it difficult to keep track of who was pregnant and who was not. The peasants promptly began to have more children, since they could now afford to pay the penalties. The response of the central authorities was to raise the penalties, devise new enforcement mechanisms, and supplement these with "administrative" measures.[39]

One of the new measures was the "double contract" system for rural families. When they received their land allotments under the "production responsibility system," they were obliged to sign a contract also to observe the family planning regulations. Those who had another child without permission could be required to increase their grain deliveries to the collective, sell more grain to the state, surrender their private plots or a portion of their "responsibility" plots, or they could be refused contracts, have their contracts "suspended," or be denied medical treatment rights and welfare funds.

In 1983 further measures were taken that made previous demands seem comparatively lenient. The central authorities directed that all couples in the childbearing ages with two or more children be sterilized, all women with one child have an IUD inserted, and all women pregnant without authorization have abortions. The third child was to be absolutely prohibited. The local authorities were to dispatch "propaganda" teams and "technical work" teams to see that these measures were carried out.[40]

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[37] By May 1981, more than 20 provinces had adopted such laws. Xian radio, Shaanxi Provincial Service, May 3, 1981, FBIS, No. 85, May 4, 1981, p. T4.

[38] XINHUA-English, Beijing, December 4, 1982, FBIS, No. 235, December 7, 1982, p. K12. Significantly, neither the provincial family planning laws nor the national constitution explicitly prohibit coercion in family planning or specify penalties for it. The Chinese press has not yet described a case of a cadre being punished for using coercion for any purpose, though it has cited many cases of severe punishments for violating family planning laws.

[39] Guangzhou radio, Guangdong Provincial Service, May 2, 1982, FBIS, No. 85, May 3, 1982, p. P3.

[40] See below, pp. 204-206.

What is clear from the evidence is that the official definition of coercion at its most inclusive has been largely confined to the use of physical force or raw political intimidation not camouflaged by efforts at "persuasion." More subtle forms of coercion that used such extreme economic, social, or psychological pressures that the people could not resist were never disapproved. As long as the victims of such pressures walked to the clinics under their own power, their submission to family planning surgery was said to be voluntary. In fact, the large numbers of sterilizations, IUD insertions, and abortions that took place during the major mobilizations were sometimes cited as proof that the people accepted and supported the program! [41]

ALTERNATING ESCALATIONS AND REMISSIONS

Official spokesmen insist, especially when speaking for foreign audiences, that they have always opposed coercion, that instances are few and attributable to excesses of local cadres, and that they are stopped as soon as detected.[42] This is at best a half truth. The official attitude toward coercion has been highly unstable. The definition has varied and the campaigns to quell coercion have been turned on and off almost year by year since the late 1970s. What the changes in policy strongly suggest is that the central authorities only oppose and disavow coercion when it backfires.

THE 1978 ANTI-COERCION CAMPAIGN

Between May and December 1978, the central authorities carried out a general campaign against "coercion and commandism" in all aspects of administration, partly in an effort to redress some of the grievous wrongs done to people during the Cultural Revolution and partly to discourage continuing abuses of power by lower level cadres. The campaign was ostensibly prompted by some extreme examples in a Shaanxi county, but similar abuses were said to "exist in some places throughout the country," and in August 1978 the *People's Daily* demanded "a big change" in the "work style" of the cadres.[43] As the campaign developed, one province after an-

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[41] Sometimes popular acceptance was taken as an *a priori* assumption, as when Xu Dixin argued in 1981 that "Since our country is a socialist state (and) since our birth control program is in the interests of the people . . . , it is certain that it is favored by the great majority of our people." See Xu Dixin, "A Few Problems Concerning Population Science," *Jingji yanjiu (Economic Research) (JJYJ)*, No. 4, April 20, 1981, FBIS, No. 101, May 27, 1981, p. K23. Official spokesmen insisted that the policy emphasized "persuasive education and the people's willingness" and that coercion was "against state policy." See "Incentives help control population," *CD*, August 8, 1983, p. 4. A State Family Planning Commission spokesman said in July 1984 that the reduction in fertility in China "could never have been achieved without the people's voluntary support." See "Two-child families for next generation," *CD*, July 4, 1984, p. 1. Hebei Province claimed that the 2 million sterilizations it had performed in January-August 1983, during the mandatory sterilization program that represented the peak in coercion thus far in China's family planning work, were all "based on the masses' own free will." See "Hebeisheng jiaqiang jieyu jishu gongzuo" ("Hebei Province Strengthens Birth Control Technical Work"), *JKB*, October 25, 1983, p. 1.

[42] Editors of the *Beijing Review (BR)*, an English language journal for foreign consumption, have said that "in promoting family planning, we have always emphasized education and opposed coercion" and that the government "never hesitates to correct (cases of coercion) the moment they are discovered." See An Zhiguo, "Family Planning," *BR*, Vol. 26, No. 35, August 29, 1983, p. 4; and Xin Lin, "A Realistic Population Policy," *BR*, Vol. 27, No. 30, July 23, 1984, p. 4.

[43] XINHUA-English, Beijing, August 2, 1978, FBIS, No. 151, August 4, 1978, p. M5; and "A Big Change in Cadres' Work Style Is Demanded," *RMRB*, August 2, 1978, FBIS, No. 151, pp. E2.5.

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other acknowledged that the faults were to be found among its cadres also, but several provincial commentaries pointed out that not all of the blame for coercion and commandism should be laid on the lower level cadres.

One said that the problem was that the higher levels were sometimes unrealistic in their demands, adopted a coercive approach in dealings with lower levels, and put more emphasis on results than on "work style." [44] Another said that some local cadres "resort to coercion and commandism because the assigned tasks are arduous and urgent," for which, it added, "the authorities at higher levels must shoulder responsibility." [45] The *People's Daily* noted that when they are faced with difficult tasks and the higher levels demand that they "carry out instructions from the top whether you understand them or not," some cadres "resort to deception, coercion, and commandism and . . . beat and scold people . . . because they are not afraid to harm the interests of the people, . . . (but) are only afraid not to be able to win the trust of their superiors." [46] An earlier *People's Daily* article laid the blame for coercion squarely on the higher authorities:

> . . . Some (higher level) organs fail to make clear to the lower organs the bounds of a given policy and the work methods and work style required. They demand that the task be accomplished "at all costs." Whoever accomplishes the task, no matter what methods they use, are considered as "capable." They are commended and promoted. Such a way of doing things gives rise to empty talk, coercion, and commandism . . .[47]

While the 1978 anti-coercion campaign was going on, there were warnings in the Chinese media against coercion in family planning and local leaders were told repeatedly that couples were not to be coerced into using contraceptives or having abortions by cutting their food rations or threatening political action against them.[48] But the prohibition against using coercion apparently demoralized many of the cadres, so that they became passive and fearful of making "mistakes." In Shaanxi Province, the cadres were assured that "if mistakes are made, it is all right as long as they are corrected," and in Sichuan they were told that "mistakes are inevitable" in administrative work but that "the worst mistake is doing no work at all." By the end of the year, the authorities were ready to forgive a good deal of coercion to reactivate the cadres.

THE ESCALATION OF 1979

In February 1978, before they had much grasp of demographic realities, the Party leaders had committed China to reducing natu-

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For more details on the manifestations of coercion in spheres other than family planning, see John S. Aird, "Fertility Decline in China," Chapter 4 in Nick Eberstadt, (ed.), *Fertility Decline in the Less Developed Countries*, Praeger Publishers, 1981, pp. 188–189.

[44] Nanning radio, Guangxi Zhuang Regional Service, August 12, 1978, FBIS, No. 159, August 16, 1978, p. H3.

[45] "All-Out Effort, Policy, and Work Style," *SCRB*, September 26, 1978, FBIS, No. 190, September 29, 1978, p. J1.

[46] "We should Have a Large Number of Cadres Who Dare to Study, Single Out, and Solve Problems," *RMRB*, December 7, 1978, FBIS, No. 239, December 12, 1978, pp. E11–12.

[47] Contributing Commentator, "Forget Not the Relationship That Is as Close as Fish to Water," *RMRB*, August 19, 1978, FBIS, No. 164, August 23, 1978, p. E2.

[48] Michael Parks, "Sex is high on list of new Chinese freedoms," *The Baltimore Sun*, January 25, 1979.

ral increase to 10 per thousand population within three years,[49] but by early 1979 they were aware that the official vital data showed natural increase for the previous three years almost level at around 12 per thousand.[50] Provincial sources had for some time been reporting that the work was "uneven," that natural increase was not declining, and that target figures were not being met. Early in 1979, the Party Central Committee issued a new policy calling on all couples to have "only one child if possible, two at the most, with a period of three or more years between them" and imposing "financial measures" on those having three or more children, in order to get population growth down below one percent per year.[51] Provincial news items began to "vigorously advocate" one child per couple. By midyear, Vice-Premier Chen Muhua had announced the goal of bringing the national natural increase rate down to 10 per thousand in 1979, to 5 per thousand by 1985, and zero by the year 2000,[52] which would have required an extreme escalation of family planning work.

As the pressures generated by the new policy mounted, concern about coercion vanished. Planned parenthood "pacts with the masses," "local laws," and other measures disapproved in 1978 as "indigenous policies" were once again approved. Sichuan Province, which had been told by the central authorities in 1978 that coercion in family planning must stop immediately, asserted in September 1979 that the 1978 criticisms had discouraged some cadres from "grasping" planned parenthood work and that an investigation had shown that, far from "overdoing things," Sichuan had not done enough.[53] Nationally, the target natural increase rates, the one child policy, the rewards and punishments prescribed in the provincial family planning laws, and the changed attitude toward coercion signalled that the authorities wanted quick results and were no longer concerned about "work style."

Reading the signals, the provinces again turned up the pressure. For example, when Guangdong Province discovered in July 1979 that if the provincial birth rate continued to the end of the year at the level of the first six months, the natural increase rate would reach 16 per thousand instead of the target figure of 10, all areas in the province were directed to require pregnant women to take "remedial measures," a standard Chinese euphemism for abortion, so that the target could be attained. They were told that "any policy that is advantageous to planned parenthood must be carried out." To reach the target, the local authorities would have had to abort 55 percent of the women in the province expecting to give birth before the end of the year, a total of about 340,000, all of them already pregnant more than three months. The order was not generally carried out, and, in the end, Guangdong's natural increase rate for 1979 was 16.96 per thousand, but in November the provincial authorities commended localities that had "taken remedial actions as requested by the province and overfulfilled the task," and called for further "remedial measures" to lower the birth rate before the end of the year, which would have meant abortions in the eighth or ninth month of pregnancy! [54]

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[49] Hua Guofeng, "Unite and Strive to Build a Modern, Powerful Socialist Country!" (Report on the work of the government delivered at the first session of the Fifth National People's Congress, February 26, 1978), XINHUA-English, Beijing, March 6, 1978, FBIS, No. 45, March 7, 1978, p. D25.

[50] The rates for 1976, 1977, and 1978 were 12.72, 12.12, and 12.05, respectively.

[51] XINHUA, Beijing, January 26, 1979, FBIS, No. 22, January 31, 1979, p. E9.

[52] XINHUA-English, Beijing, June 28, 1979, FBIS, No. 127, June 29, 1979, p. L5; and Beijing radio, Domestic Service, July 5, 1979, FBIS, No. 134, July 11, 1979, p. L25.

[53] Liu Haiquan, "Control Population Growth with the Same Drive Used in Grasping Production and Construction," *GMRB*, September 13, 1979, JPRS, No. 74,694, December 13, 1979, p. 68.

THE ANTI-COERCION CAMPAIGN OF 1980–81

The aggressive measures of 1979 apparently evoked strong negative reactions among the masses. The authorities responded with a second anti-coercion campaign in 1980 and the first half of 1981, limited this time to family planning work. It consisted of the usual warnings against "coercion and commandism," issuing compulsory orders, using simple and rigid methods, and problems in "work style," and called for more emphasis on "meticulous ideological work" and persuasion, being "fair and reasonable," and doing work in a "down-to-earth manner." The cadres were told to avoid indiscriminate use of rewards and punishments and methods that are "divorced from the masses." One article warned that such "forcible" measures as refusing birth registration for second and higher parity children, denying them rations, and depriving their parents of employment could have outcomes "contrary to our wishes," and another said that "oversimplified and crude ways can only bring damage and destruction to our work." [55]

Once again, some cadres read these warnings as a call to ease the pressures in birth control work, which promptly began to lag. Targets were not met, policies were not implemented, and "unplanned" births were still numerous. Rumors spread in some areas that the one child policy was about to be abandoned. Some cadres thought that according to the new official attitude enforcing the provincial family planning laws constituted coercion.[56] The relaxation of cadre efforts in 1980 was followed in 1981 by an upsurge in births in much of the country. The upsurge was also due in part to two changes in national policy which unintentionally dealt a setback to family planning. One was the passage of a new marriage law in September 1980, which raised the minimum ages for marriage by two years but also invalidated local administrative rules that had set much higher minimum ages in most of the country.[57] The result was that three or four cohorts of young people became eligible to register for marriage at the same time and immediately rushed to do so. The authorities realized that the rash of marriages would soon be followed by a sharp increase in the numbers of first births.

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[54] "Shenggeweihui zhaokai jihua shengyu gongzuo dianhua huiyi" ("Guangdong Provincial Revolutionary Committee Holds Telephone Conference on Family Planning Work"), *Nanfang ribao (Southern Daily) (NFRB)*, November 11, 1979, p. 1.

[55] Xu Dixin, "A Few Problems Concerning Population Science," *JJYJ*, No. 4, April 20, 1981, FBIS, No. 101, May 27, 1981, p. K23.

[56] They were told that this was "completely wrong" and that law enforcement could not be considered coercion since people must obey the laws. The authorities were not troubled by the fact that the laws themselves were coercive. See "Dui wosheng jihua shengyu gongzuo de jidian xiwang" ("A Few Expectations Concerning Planned Parenthood Work in Guangdong Province"), *NFRB*, October 6, 1980, p. 1; and Xu Xuehan, "Tiaozheng woguo renkou zaishengchan de guanjianxing juece" ("The Key Policy Decisions in the Readjustment of China's Population Reproductive,") *GMRB*, August 29, 1981, p. 3.

[57] XINHUA, Beijing, September 15, 1980, FBIS, No. 184, September 19, 1980, p. L22. The new minimum ages were 20 for women and 22 for men. But the previous administrative restrictions had set limits as high as 23 and 25, respectively, or higher in most areas. These limits were now said to be superseded. Even before the new law was formally promulgated on January 1, 1981, there was a rush to get married throughout the country.

The second policy change was the extension to most of rural China during 1981 of the "production responsibility system," under which the collective land was allocated on contract to individual peasant families, who were allowed to farm it on their own initiative, remanding an agreed proportion of their crops to the commune at the end of the year but retaining the rest to consume or sell on the free market at their own discretion. The intent was to arouse the peasants' "enthusiasm for production," which had admittedly been dampened during 20 years of collectivization. In this respect, the new policy has been quite successful, but it has also removed peasant families from the daily surveillance of the rural cadres, given the peasants greater wealth and independence, and encouraged many of them to consider having more children to add to the family labor force in the future. The cadres in some areas, frustrated at their loss of control over the situation, simply threw up their hands and stopped enforcing family planning requirements.[58]

Foreseeing a deluge of births, the central authorities declared that population growth was "out of control" in many areas, that a new "baby boom" was imminent, and that a "population explosion" threatened to wipe out all the family planning gains of the 1970s. These prospects were described as "frightening," "disastrous," and "catastrophic." By the middle of 1981, concern over coercion had again been eclipsed by fears about population growth.

ESCALATION AND CONFUSION IN 1981–82

Once again, the central authorities issued urgent orders to reactivate birth control work. In March 1982, the Party Central Committee and the State Council called for action to bring population growth under control,[59] and the *People's Daily* warned that if control were not restored in time, the national population could exceed 1.3 billion by the end of the century, far beyond the target of under 1.2 billion.[60] In the same month, the central authorities also issued a directive calling on Party and government organs at lower levels to do "still better family planning work," urging them to "promptly study and tackle the new situation and new problems that have cropped up," and making the one child policy virtually universal. The directive stated flatly that "no one is allowed to have a third child, no matter what." [61]

But developing new enforcement mechanisms took time, and meanwhile there was confusion at the local levels. While some units urged "rigorous enforcement," "necessary administrative interventions," "decisive and urgent measures," and "inflexible family planning work," which sounded like invitations to the local cadres to resume coercion, others revived the standard warnings against coercion. Some again resorted to "shock attacks" and "village rules and agreements," set up the "double contract" system, denied contract land and private plots to families with unauthorized births, and added "administrative disciplinary measures" to their economic penalties, but in others the work virtually ceased, family planning efforts were relaxed, no one was in charge of the work, and childbearing was in "a state of anarchy."

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[58] Some areas reported a rise in second births. As some people put it, "the loudspeakers are silent, the secretaries are mute, and babies are being born." See "Renda daibiao fayan yaoqiu jihua shengyu ying lifa" ("Deputies to the National People's Congress Demand that a Family Planning Law Be Enacted"), *JKB*, December 13, 1981, p. 1.

[59] XINHUA, Beijing, March 13, 1982, FBIS, No. 50, March 15, 1982, pp. K4–6.

[60] "Firmly Adhere to the Scientific and Correct Population Policy," *RMRB*, March 14, 1982, FBIS, No. 50, March 15, 1982, p. K3.

[61] XINHUA, Beijing, March 13, 1982, *loc. cit.*

Meanwhile, with the help of China's newly established demographic research centers and their analyses of China's age structure, the central authorities became aware of another serious threat to their population targets. The enlarged cohorts of people born between 1962 and the early 1970s were about to enter the childbearing ages, continuing the upsurge of births caused by the new marriage law and the responsibility system. In November 1982, Qian Xinzhong told a national family planning work conference that . . .

> Our country is now facing a new peak in population growth rates . . . Only by maintaining the annual net increase in population at around 10 million for the next 18 years can we achieve the fighting goal of limiting the population to under 1.2 billion by the end of this century.[62]

In the same month, State Counsellor Bo Yibo predicted that the next three years, 1983–85, would be a crucial period for family planning in China.[63] The official concern culminated in a new family planning drive more extreme than any in prior human experience.

MANDATORY BIRTH CONTROL SURGERY IN 1983

On December 9, 1982, a circular issued jointly by the State Family Planning Commission, the Party Central Committee, Propaganda Department, and several other organizations announced that a national family planning "propaganda" month would begin on New Year's Day and last until after Spring Festival. It called for sterilization of couples with two children and the prompt abortion of unauthorized pregnancies.[64] After the start of the new year, it became clear that sterilization was the "key measure" under the new policy, and in March an unnamed "central leadership comrade" said that the success of the propaganda month must be affirmed and the effective measure continued. In May a provincial source revealed that these measures had been approved by the Party Central Committee and the State Council.[65] Responsibility for them clearly rested with the highest authority in the land.

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[62] XINHUA, Beijing, November 1, 1982, FBIS, No. 213, November 3, 1982, p. K20. A few days later he said in an interview that the annual increment should be kept under 11 million, 3 million less than the 14 million figure for 1981. See XINHUA-English, Beijing, November 6, 1982, JPRS, No. 82,378, December 3, 1982, p. 74.

[63] XINHUA, Beijing, November 6, 1982, FBIS, No. 218, November 10, 1982, p. K21.

[64] "Guanyu kaizhan quanguo jihua shengyu xuanchuanyue huodong de tongzhi" ("Circular on Carrying Out the Nationwide Family Planning Propaganda Month Activities"), State Family Planning Commission Document No. 207, December 6, 1982, *Zhonqua renmin gongheguo quowuyuan gongbao (People's Republic of China State Council Bulletin)*, 1982:21, February 12, 1983, pp. 1063–1070.

[65] "Zhongyang lingdao tongzhi zuijin zhichu jihua shengyu gongzuo bixu jixu zhuahao" ("A Centrol Leadership Comrade Recently Pointed Out that Family Planning Work Must Continue

Continued

The purpose in making sterilization the "key measure" was not just to eliminate third and higher parity births but to use the threat of sterilization to "spur . . . the adoption of other birth control measures." [66] How it did so was explained by the Vice-Governor of Guangdong Province, who said that "the basic purpose of (sterilization) is to absolutely prohibit married couples from bearing a second child," [67] implying that fear of being sterilized would suffice to make one child couples avoid further pregnancies. This strategem clearly assumed that people did not want to be sterilized and could thus be intimidated into avoiding a second pregnancy by the certainty that it could lead to their being sterlized against their will. Of course, sterilization also had the advantage of eliminating any further need for "persuading" people, monitoring their pregnancy status, and "mobilizing" them for abortions. Once sterilized, their compliance was assured! [68]

Accordingly, couples of childbearing age with two or more children were designated as persons "who should be sterilized," and the provincial authorities estimated their numbers and made plans to complete the surgeries over the next several years.[69] Initial reports indicated a massive sterilization drive under way. In June 1983, Premier Zhao Ziyang told the Sixth National People's Congress that it was necessary to "continue to lay special stress on population control, . . . persistently advocate late marriage and one child per couple, strictly control second births, (and) prevent additional births by all means." [70] By the end of the year, it was reported that a total of 20.8 million sterilizations had been performed.[71] The mandatory sterilization, IUD insertion, and abortion policy of 1983, with its quotas and "high tides," was a violation of previous admonitions against "rigid rules," "crash jobs," and "forcing everybody to do the same thing," but in 1983 these were no longer part of what the central authorities chose to regard as coer-

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to Be Done Well"), *JKB*, March 3, 1983, p. 1; and "Jiu youguan jieyu jishu zhengce, shengyu zhengce deng wenti Wang Pingshan fushengzhang da jizhe wen" ("Vice-Governor Wang Pingshan Answers Reporter's Questions on Policies on Birth Control Techniques and Childbearing"), *NFRB*, May 15, 1983, p. 2.

[66] Joint Investigation Team, State Family Planning Commission, Hebei Provincial Family Planning Office, and Shijiazhuang Prefectural Family Planning Office, "Nongcun jihua shengyu gongzuo de yixiang zhongda cuoshi" ("An Important Step in Rural Family Planning Work"), *JKB*, April 3, 1983, p. 2.

[67] Guangzhou radio, Guangdong Provincial Service, May 14, 1983, FBIS, No. 114, June 13, 1983, p. P1.

[68] The advantages of sterilization were set forth in an article in a national health journal. See Ju Genhua, "Tichang nongcun yi sheng liangtai de yuling fufu ziyuan zuo jiesha" ("Encourage Rural Couples of Childbearing Age Who Already Have Two Children to Volunteer for Sterilization"), *JKB*, January 16, 1983, p. 2.

[69] For example, Guangdong Province reported that it had 7 million couples of childbearing age, of which 5.2 million had two or more children and "should be sterilized," but only 2.2 million had already had the operation by May 1983. The province had a three-year plan to sterilize 2.7 million of the remainder, of which 1.7 million were to be sterilized in 1983. See "Sheng weishengting fachu tongzhi yaoqiu geji weisheng bumen zuohao jihua shengyu jishu gongzuo;; ("The Provincial Public Health Department Issues Circular Requesting Public Health Organs at All Levels to Do Well in Technical Planned Birth Work"), *NFRB*, May 10, 1983, p. 1.

[70] Zhao Ziyang, "Report on the Work of the Government," delivered at the First Session of the Sixth National People's Congress, June 6, 1983, XINHUA-English, Beijing, June 23, 1983, FBIS, No. 122, June 23, 1983, p. K11.

[71] These figures were obtained from the Ministry of Health by Michael Weisskopf. See "Abortion Policy Tears at Fabric of China's Society," *loc. cit.* A total only slightly different was estimated by Judith Banister from official data on nationwide birth control usage in 1982 and 1983. See Judith Banister. *China's Changing Population*, Stanford University Press, Stanford, California, (forthcoming in 1985), table 7.2.

cion. In fact, in the domestic media of China in 1983, coercion was hardly mentioned.

SLIGHT MODERATION AND AMBIVALENCE IN 1984

The human costs of the mandatory surgeries in 1983 may never be known in full, but the political costs must also have been significant. Although several provinces planned to stage another propaganda month in January 1984 to continue and even to intensify the sterilization drive, these plans were interrupted soon afterward by another change in policy. The first hint of a change was the fact that in December 1983 Qian Xinzhong was removed without explanation from his post as head of the State Family Planning Commission.[72] At the end of January 1984, the new director, Wang Wei, said that family planning work must be "based on local conditions" and carried out "reasonably to win the support of the broad masses" and urged the cadres to find ways of doing family planning work effectively and at the same time "building a close relationship between the Party and the people." [73] The last phrase clearly indicated that, as in the past, the coercive measures of 1983 had caused such a negative popular reaction that they now had to be disavowed once more.

Provincial family planning leaders attending a 10-day conference in Beijing that concluded on March 7, 1984 were told that family planning measures should be "more realistic," supported by the masses, and easy for the cadres to carry out, that it was necessary to improve their "work style," and that they should "refrain from coercion" and "strictly forbid any illegal and disorderly action." While the one child policy was still to be promoted, the circumstances under which couples could be allowed to have a second child were slightly enlarged, provided that the national, provincial, and local target population totals for the year 2000 were not exceeded,[74] which meant that very few second births could be permitted.[75] In May 1984, the family planning edition of the journal *Health Gazette* explained that family planning work was to be "subordinated to and serve the general tasks and goals of the Party," [76] and in June it warned against coercion, being "doctrinnaire" about punishments, indiscriminate sterilizations, scheduling too many surgeries, and letting unqualified persons perform them, and forbade the setting of surgical quotas for lower levels.[77] The excesses of 1983 were, as usual, ascribed to local "misunderstanding" of central policies, which the central authorities pretended had never changed.

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[72] "China set to invoke new law on statistics," *CD*, December 9, 1983, p. 1.

[73] "Guojia jihua shengyu weiyuanhui fuzhe tongzhi weiwen jiceng ganbu he dozinuhu" ("Responsible Comrades of the State Family Planning Commission Visit Basic Level Cadres and Households with an Only Child"), *JKB*, January 29, 1984, p. 1.

[74] "Quanguo sheng, shi, zizhiqu jihua shengyu weiyuanhui zhuren huiyi haozhao jixu dali zhuahao jihua shengyu gongzuo" ("Conference of Directors of Family Planning Commissions of All Provinces, Municipalities, and Autonomous Regions Calls for Continued Efforts to Carry Out Family Planning work"), *RMRB*, March 8, 1984, p. 1.

[75] In October, a writer in the same journal revealed that the Party Central Committee had suggested that the proportion of couples to be considered for a second child be increased to 10 percent. This was called "opening a small gap" and was contingent on the success of the effort to close the "large gap" of other families having unauthorized births. See Long Guangrong, "Renzhen kai hao xiaokou qieshi duzhu dakou" ("Earnestly Do Well in Opening a Small Gap and Effectively Close the Large Gap"), *Jiankang bao jihua shengyu ban (Health Gazette Family Planning Edition) (JKBJHSYB)*, October 19, 1984, p. 3.

[76] "Ge sheng, zizhiqu, zhixiashi lianxi dangdi shiji jiejue wenti ba zhongyang dui jihua shengyu gongzuo de zhibiao bianwei xingdong" ("Provinces, Autonomous Regions, and Municipalities Solve Problems by Taking Local Realities into Consideration and Turn the Directives of the Party Central into Actions"), *JKBJHSYB*, May 18, 1984, p. 1. But the article also said that the success of previous policies in reducing the numbers of births showed that they were "completely correct."

Soon after the March conference, the new policy was spelled out in a directive referred to as "Party Central Committee Document No. 7," the text of which has not been made public. From exigeses given in the Chinese media, it is evident that the directive called for moderation and flexibility in implementing policies and avoidance of coercion to repair relations with the masses but at the same time demanded that the cadres maintain "a tight rein" on family planning, strengthen their leadership, and continue to fulfill the assigned targets. The mixed signals plunged the cadres into confusion, and in some places they reportedly lost faith in the resoluteness of the central authorities and stopped enforcing family planning requirements. Rumors began to circulate that the policy had changed and that all families were now allowed two children. It was reported later that after Document No. 7 was transmitted to the local levels, some cadres were afraid to reveal it to the masses lest they assume a relaxation had been ordered. It was said that a situation in which "the masses are delighted and the cadres are worried" was "quite prevalent." [78] In May, Wang Wei attempted to clarify the intent of Party Document No. 7, and throughout the summer and fall of 1984 warnings were issued against complacency, passivity, and laxness.[79] The 1983 policies on sterilization, IUD insertion, and abortion were reinstated, and, at least in some places, sterilization quotas were resumed.[80] This somewhat hardened line was still in force at the start of 1985.

The on-again-off-again anti-coercion campaigns and the alternate escalations and remissions in family planning demands make it quite clear that the central authorities approve and encourage the use of coercive methods and welcome the results gained through them but will not accept responsibility for them. The local cadres alone are held accountable for policy failures, whether due to excessive compulsion or not enough. Since the central authorities control the media at all levels, they can reinterpret policies and events to suit their own convenience. The local cadres seldom get to tell their side of the story.

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[77] "Weishengbu he guojia jihua shengyu weiyuanhui lianhe fachu tongzhi yaoqiu gedi guance zhongyang zhishi jingshen zuohao jihua shengyu jishu zhidao gongzuo" ("The Ministry of Public Health and the State Family Planning Commission Issue a Joint Circular Requesting that All Areas Carry Out the Guidelines of the Central Committee by Doing Well in the Work of Giving Family Planning Technical Guidance"), *JKBJHSYB*, June 8, 1984, p. 1; and Peng Zhiliang, "Tan jihua shengyu zhengce yao heqing heli" ("Family Planning Policy Must Be Fair and Reasonable"), *JKBJHSYB*, June 29, 1984, p. 3. A month earlier the journal had carried an article citing as an example to be copied a Hunan county that would not permit its cadres to violate the "four-not-allowed"—i.e., not allowed to "scold the masses," "break down houses," "take away the grain," or "carry away the pigs." The county was congratulated for having had "no cases of coercion since 1981." Its cadres had changed their "work style" and now they "tasted the sweetness"—they were welcomed by the masses wherever they went! See "Zhuzhong gongzuo fanfa guanxing qunzhong jiku" ("Pay Attention to Work Methods and Care for the Sufferings of the Masses"), *JKBJHSYB*, May 18, 1984, p. 3.

[78] "Liaoning Sheng lianxi shiji renzhen guance zhongyang qihao wenjian" ("Liaoning Province Conscientiously Implements Party Central Committee Document No. 7 by Relating It to Reality"), *JKBJHSYB*, November 2, 1984, p. 3.

[79] "Ba thongyang jingshen wei ganbu qunzhong de zijue xingdong" ("Turn the Guidelines of the Party Central Committee into Voluntary Actions on the Part of the Cadres and the Masses"), *JKBJHSYB*, July 6, 1984, p. 1. This article is an abstract of a discussion Wang Wei had with reporters on May 29, 1984.

[80] A report from Hainan Island in August 1984 complained that the region had done rather poorly in fulfilling the sterilization quota assigned by the provincial authorities. See Haikou radio, Hainan Island Service, August 31, 1984, FBIS, No. 173, September 5, 1984, p. P5. The 1983 policies are also mentioned in Xining radio, Qinghai Provincial Service, October 16, 1984, FBIS, No. 204, October 19, 1984, p. T1; and Nanning radio, Guangxi Regional Service, December 4, 1984, FBIS, No. 236, December 6, 1984, p. P1.

THE CASE OF HUIYANG PREFECTURE

One of the few cases in which both the media version and the local side of a story are available for comparison occurred in 1981, thanks to the intervention of a Hong Kong newspaper. This case is extremely important as an indication not only of the accuracy of Chinese media coverage of politically sensitive matters but also of the credibility of official claims that coercion in family planning is not allowed. In the summer of that year, just as the second anti-coercion campaign was being terminated, the paper, *Contention Daily,* an enterprising offshoot of the journal *Contention,* began to receive letters from readers in Huiyang Prefecture, Guangdong Province, complaining of "cruel struggles and heartless attacks" carried out in the prefecture's family planning drive. Like its parent journal, the newspaper supported Deng Xiaoping and circulated widely in Guangdong, where its reporters enjoyed ready access to cadres and people alike. Accordingly, the paper sent a reporter to Huiyang to investigate. The reporter learned that family planning work was directed by the acting prefectural Party secretary, Du Ruizhi, who had demanded at a meeting in late April that 47,000 women in the prefecture who had two or more children and were again pregnant to subjected to abortion in an all-out drive during May and June. Targets were assigned to all of the ten counties and municipalities in the prefecture. On May 26, Du made a speech calling for "total victory" and said that "although it was against the people's wishes" this was normal under the circumstances, that all methods of controlling population growth were correct, and that it did not matter if some "problems" occurred during the abortion drive because the Party would not hold the cadres responsible. Du promised that those who did a good job would be rewarded and assured them that the same methods were being used throughout the country.[81]

In many communes in Dongguan County, where the campaign was waged most fiercely, the pregnant women were herded into "study classes," where they were not allowed to talk to one another or to rejoin their families and were surrounded by "work teams" who pressured them to have abortions regardless of the duration of pregnancy. Those who resisted were criticized in public meetings, harassed, and humiliated. It was alleged that vehicles were sent to the villages to round up the pregnant women and take them to the hospitals by force, creating a panic wherever they appeared. Individual respondents told of seeing women taken away in handcuffs, tied with ropes, or in cages used to transport hogs. In Huiding

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[81] Lo Ming, " 'Zuo' xing weigai huaiyun youzui" ("The 'Leftist' Nature Has Not Been Changed; It Is a Crime to Be Pregnant"), *Zhengming ribao (Contention Daily),* (*ZMRB*), Hong Kong, July 27, 1981, p. 1.

County it was said that arrest warrants were issued for some women on which the word "pregnant" was written in the space indicating the crime committed.[82] In urban areas, water and electricity were cut off for noncompliant households; in rural areas the electricity was cut off, the houses were sealed, and fines were imposed. In one commune of Dongguan County, roof tiles were removed, the children of the family were turned out of doors, and other families were warned not to feed them or they would be fined. In one instance, a pregnant school teacher fled to another community to save her second pregnancy, but her husband was arrested and confined in a "water dungeon" until she returned and submitted to an abortion. The Dongguan Party secretary was quoted as saying that the purpose was to see to it that "there is no road to heaven and no door into the earth" for the pregnant women to escape through.[83]

Both the cadres and the masses were intimidated and dared not protest openly. Some of the cadres felt that the campaign was an example of "leftism," then under official interdict, a violation of human rights, Party discipline, and the laws of the state, and further strained relations between the Party and the masses. One cadre said that Du Ruizhu was "really like a mad dog that went around biting people." [84] The local public security organs reportedly refused to accept charges of law violations against Du's family planning cadres.[85]

The Hong Kong reporter could not at first ascertain under what authority Du Ruizhi was acting. The provincial newspaper, *Southern Daily,* seemed hesitant about reporting his activities, as though the provincial authorities were unsure of the official line, then in transition. At the end of May, Du went to Guangzhou to make a report, but instead of returning to Huiyang, he went to Beijing, apparently on his own initiative. When he next appeared in Huiyang, his manner was subdued, which led local cadres to suspect that his methods had been disapproved. By late July, it was rumored that Du would shortly be transferred back to a provincial organ, but people in Huiyang did not know whether this was a promotion or a demotion.[86]

They were not long left in doubt. In late August, the Guangdong provincial authorities announced a new family planning drive for September to mobilize pregnant women for abortion, convened an "on-the-spot" meeting in Huizhou Municipality to "study the experiences" of Huiyang Prefecture in "getting a good grasp of family planning work in the new situation," and commended the Huiyang leaders for what they accomplished in May and June, when they had shown "great determination, . . . made a big show of strength, . . . (and) carried out ideological education together with letting the policy play its authoritative part." They were also congratulated for having "displayed the Party's fine work style of serving the masses and doing a good job of planned parenthood work." [87] Guangdong Governor Liu Tianfu concluded that "the experience was good and the achievement was great." [88] All areas were called upon to "learn from the experiences of Huiyang." [89] In September, the Huiyang example was brought to national attention by a XINHUA reporter who cited Huiyang's spring abortion drive as proof of what could be done "through patient and meticulous ideological work among the masses." [90]

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[82] *Ibid.*

[83] Lo Ming, "Xiachua guaishi wuqibuyou" ("Laughable and Peculiar Events; Nothing Is Too Strange"), *ZMRB*, July 28, 1981, p. 1.

[84] Lo Ming, "Why Is There Still Lawlessness? The Ultraleftist Practice of 10 Counties and Municipalities in East Guangdong in Planned Parenthood," *ZMRB*, July 29, 1981, JPRS, No. 78,901, September 3, 1981, pp. 68–69.

[85] Lo Ming, "Xiachua guaishi wuqibuyou," *loc. cit.*

[86] Lo Ming, "Why Is There Still Lawlessness? . . ." p. 70.

With the high level approval of his tactics, Du Ruizhi also prospered. In November 1981, elevated to membership on the standing committee of the provincial Party committee, Du gave the summary speech at a provincial family planning meeting commending the Huiyang example, and in December he did the same at a meeting on family planning in Guangdong's cities.[91] In May 1983, Dongguan County was commended for its "excellent results" in family planning and for the fact that its "top men" took firm charge of the work and had "great determination and great momentum." [92] In August 1983, Du was in attendance at another provincial family planning meeting, in October he spoke at still another, and in May 1984 he addressed a provincial telephone conference and gave the closing speech at a "mobilization rally" introducing Party Document No. 7.[93]

The central authorities could hardly have been unaware of the allegations made against Du in the Hong Kong newspaper. The provincial authorities were not; they made at least one attempt to explain away one of the Huiyang incidents as a public misunderstanding.[94] In what was obviously a centrally directed action, mainland Chinese trading firms suddenly withdrew their advertising from the Hong Kong paper causing it to collapse on August 1, 1981, just 44 days after its founding.[95]

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[87] Guangzhou radio, Guangdong Provincial Service, August 20, 1981, FBIS, No. 162, August 21, 1981, p. P1; Guangzhou radio, August 28, 1981, FBIS, No. 169, September 1, 1981, p. P5; and Guangzhou radio, August 29, 1981, FBIS, No. 169, September 1, 1981, p. P6.

[88] "Jianchi ba jihua shengyu he gongnongye shengchan zhe liangjian dashi yiqi zhuahao" ("Persist in Grasping Family Planning Work and Agricultural and Industrial Production Simultaneously and Well"), *NFRB*, August 29, 1981, p. 1.

[89] "Xuexi Huiyang diqu jingyan zhuahao jihua shengyu gongzuo" ("Learn from the Experiences of Huiyang Prefecture and Grasp Family Planning Work Well"), *NFRB*, August 29, 1981, p. 1.

[90] XINHUA, Beijing, September 11, 1981, FBIS, No. 179, September 16, 1981 pp. P1-2.

[91] At the first meeting, it was asserted that since the Huizhou "on-the-spot" meeting there had been an improvement in family planning and the cadres' "work style." See "Shengfu zhaokai jihua shengyu gongzuo huiyi yanjiu jinhou gongzuo" ("The Guangdong Provincial Government Holds a Family Planning Work Meeting to Study Plans for the Coming Year"), *NFRB*, December 2, 1981, p. 1; and Guangzhou radio, December 20, 1981, JPRS, No. 79,892, January 19, 1982, p. 52.

[92] "Qingyuan, Dongguan jihua shengyu gongzuo chengji xianzhu" ("Qingyuan and Dongguan Achieved Marked Results in Family Planning Work"), *NFRB*, May 20, 1983, p. 1.

[93] Guangzhou radio, August 8, 1983, FBIS, No. 155, August 10, 1983, pp. P1-2; Guangzhou radio, October 8, 1983, FBIS, No. 197, October 11, 1983, p. P1; Guangzhou radio, May 8, 1984, FBIS, No. 91, May 9, 1984, pp. P1-2; and Hu Fuqiang, "Guangdong sheng, Guangzhou shi lianhe zhaokai jihua shengyu gongzuo dongyuan dahui" ("A Mobilization Meeting on Family Planning Work Was Jointly Held by Guangdong Province and Guangzhou Municipality"), *Renkou yu jingji (Population and Economics) (RKYJJ)*, No. 4, August 25, 1984, p. 63.

[94] The explanations were offered by Li Hanbo, deputy director of Guangdong's provincial family planning organ (hence an underling of Du Ruizhi), to an American reporter. See Christopher S. Wren, "China's Birth Goals Meet Regional Resistance," *The New York Times*, May 15, 1982, p. 7.

[95] David Bonavia, "Deng stops the presses," *Far Eastern Economic Review*, August 7, 1981, p. 34.

The Huiyang case shows how coercive practices can be upheld as examples of "patient and meticulous ideological work" and of "the Party's fine work style" by the Chinese media during periods when coercion has central approval. It also strongly suggests that coercion is not merely a matter of local initiative but is actually the result of a correct reading of central intentions by local authorities. Moreover, the career of Du Ruizhi confirms what the *People's Daily* said in 1978 about the commendation and promotion of local cadres who accomplish centrally assigned tasks through coercive means.[96]

FOREIGN VIEWS ON THE COERCION ISSUE

Surprisingly, the evidence from China has not had a decisive impact on foreign perceptions of the nature of the Chinese family planning program. One reason may be that the detailed evidence is scattered in obscure sources and not easily assembled and evaluated. Another is that the Chinese authorities have withheld important directives and reports that might tend to contradict the official claim that the program is voluntary. But perhaps the main reason why foreign descriptions of the Chinese program often ignore or downplay its coercive aspects is that for many foreign observers coercion in family planning poses a conflict in values that is not easily resolved. Many agree that China urgently needs to control its population growth but are also committed to humanitarian principles and ideas about human rights which coercion violates. Acceptance of the Chinese denials means that the inherent value conflict need not be faced.

CHINESE STATEMENTS FOR FOREIGN CONSUMPTION

For their part, the Chinese authorities do their best to see that the official story is made as acceptable as possible. Domestic communications about family planning in the Chinese media are usually purposefully vague and euphemistic, but those addressed to foreign audiences are still more carefully worded and often contain what looks like calculated disinformation. Aside from the routine assertions that China's program is bsed on the voluntary cooperation of the people "under state guidance," [97] that it relies on education and persuasion, and that its success is due to "mass support and understanding," Chinese sources also insist that the state merely "advocates" or "urges" the adoption of birth control, that couples are "encouraged" to have only one child, and that sterilization is "provided free of charge." [98] Punitive measures are rarely alluded to in statements for foreign audiences. Instead, foreigners are assured that "all this is done on the basis of respect for personal choice" and that population plans are "worked out through full discussion from the grass roots up to the central level and have been carried out by the masses on a voluntary basis," [99] which amounts to a denial that targets and quotas are assigned from above.

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[96] See above, pp. 23-24.

[97] For example, see Beijing Centre of Communication and Education for Family Planning, "A Bird's Eye View of China's Population and Family Planning" (no date or place of publication), p. 3.

[98] XINHUA-English, Beijing, May 19, 1979, FBIS, No. 102, May 24, 1979, p. L6; XINHUA-English, Beijing, October 26, 1981, FBIS, No. 207, October 27, 1981, pp. K7-8; "Speech by Head of Chinese Delegation at Third Asian and Pacific Population Conference" (mimeo), 1982; XINHUA-English, Beijing, March 21, 1983, FBIS, No. 56, March 22, 1983, pp. K7-8; and "Highlights from Statements of Countries in the ESCAP Region at the 39th Session of ESCAP, April 19-29, 1983," *Population Headliners*, No. 98, May 1983, p. 3.

In 1983, when mandatory sterilization, IUD insertion, and abortion were in full force, with sterilization as the main thrust, Qian Xinzhong maintained that sterilization was "voluntary," and other spokesmen said that it was "encouraged" or "recommended" but "never compulsory," that women were "advised" to use IUDs, and that "no operation can be done without the person's consent." [100] To persuade foreign audiences that the program was not coercive, Qian argued in 1983 that it could not have attained the success it had without mass support. How, he asked, could you coerce one billion people? [101] But as Qian well knew, it was not necessary to coerce a billion people in China to force compliance with family planning requirements; coercing couples in the childbearing years, less than 35 percent of the population, would suffice, and of these only the very few who dared to resist actively need be coerced overtly to bring the rest into line. However, Qian could reasonably expect that the assumptions implicit in his rhetorical question would not be examined too closely. During a visit to the United States in February 1985, Zhou Boping, Vice-Minister of the State Family Planning Commission, allegedly told various people, including members of the U.S. Congress, congressional staff, and journalists, that China does not force women to have abortions, does not have late-term abortions, promotes contraception but not abortion, permits parents whose first child is a daughter to have a second child, and punishes officials who resort to coercion by removing them from office. All of these claims are contradicted by evidence from other Chinese sources.[102]

THE RESPONSE OF FOREIGN OBSERVERS

Chinese family planning propaganda directed at foreigners has had somewhat mixed success. It has not impressed foreign media personnel in China, most of whom are inclined from training and experience to discount cover stories and probe further, but it has been quite effective with some other people, notably those that advocate planned parenthood and the control of population growth, some of whom have even tried to take issue with the journalists. For example, when the *Wall Street Journal* editorialized in April 1984 that "by now the evidence about coercive birth control in China is overwhelming," [103] a representative of a population control advocacy group responded by quoting Qian Xinzhong to prove that the Chinese "will not tolerate coercive practices" and that family planning in China "must be voluntary." [104] In 1982, a representative of another such organization also defended the Chinese program as a "very well organized and good motivational program with strong political commitment" and one that "the world should copy," and in November 1984 the same spokesman, on a visit to China, said that he had not detected any coercion during his tour and added that "China has shown to the world what can be done when people conscientiously tackle the problem." [105]

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[99] Chinese Delegation to the Third Asian and Pacific Population Conference, "China's Population and Its Prospects" (country statement), September 1982, p. 7; and Beijing Centre of Communication and Education for Family Planning, *loc. cit.*

[100] Qian Xinzhong, "Controlling Population Growth," *BR*, Vol. 26, No. 7, February 14, 1983, p. 23; Michael Weisskopf, "China Orders Sterilizations for Parents," *The Washington Post*, May 28, 1983, p. A27; XINHUA-English Beijing, August 3, 1983, FBIS, No. 151, August 4, 1983, p. K9; and An Zhiguo, "Family Planning," *BR*, Vol. 26, No. 35, August 29, 1983, p. 4.

[101] XINHUA-English, Beijing, September 23, 1983, FBIS, No. 188, September 27, 1983, p. K9.

[102] See "China's Program: 'Voluntary, Not Coercive,' " *Popline*, Vol. 7, No. 2, February 1985, p. 3. The remarks attributed to Zhou in this article are not necessarily verbatim, but the Population Institute staff member who prepared the article is confident that they are accurate in substance.

[103] "Paying for Abortions," *The Wall Street Journal*, April 9, 1984, p. 34.

Kind words have also been said about the Chinese family planning program by representatives of international organizations in the population field whose charters explicitly condemn the use of coercive measures. In 1981, Rafael M. Salas, Executive Director of the United Nations Fund for Population Activities (UNFPA), was quoted as saying that "China provides a superb example of integrating population programs with the national goals of development." [106] In April 1983, officials of the International Planned Parenthood Federation (IPPF) visiting China at the invitation of Qian Xinzhong reportedly said that China's program was successful because "the masses have an understanding of family planning" and "it is the people's own choice." They also said that China's population policies were consistent with the goals of the IPPF and invited the Chinese Family Planning Association, then an associate member of the IPPF, to become a full member.[107] In May, the UNFPA deputy in Beijing was quoted in an assertion that China's one child policy was "the only choice for a country with such a large population." [108] In June, a deputy secretary general of the IPPF allegedly said that China's program had been approved by the people, who saw it as in their interests and practiced family planning willingly.[109] In November, the IPPF Members' Assembly meeting in Nairobi reaffirmed the organization's commitment to voluntary informed choices about contraception and welcomed the Chinese Family Planning Association (and six others) to full membership.[110] In April 1985, a Chinese reporter who interviewed Mr. Salas in his New York office quoted him as saying, "China has done an outstanding job in her population problem," and the "People's Daily" quoted him as telling Premier Zhao Ziyang at a reception in Beijing that "China's family planning policy is established on the basis on voluntary acceptance by the people and is therefore accepted by the people" and that China should be proud of its achievements in family planning.[111]

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[104] See the letter from Fred O. Pinkham, President of the Population Crisis Committee, in *The Wall Street Journal*, April 20, 1984.

[105] The spokesman was Werner Fornos, Director of the Population Action Council, who visited China at the invitation of the State Family Planning Commission in November 1984. See "*China Daily* wins global media award," *CD*, March 16, 1982, p. 3; and "Husbands praised by population expert," *CD*, November 24, 1984, p. 1.

[106] "1% Population Growth Goal for Asia," *Popline*, Vol. 3, No. 11, November 1981, p. 2.

[107] "Guojia jihua shengyu lianhehui Wu Kunhuang zhuxi he Aluweihaier zhuren shuo: renmin xuanze Zhongguo de jihua shengyu shi renmin zijide xuanze" ("President Ng Khoon-Fong and Director Aluvihare of the International Planned Parenthood Federation Say that China's Family Planning Is the People's Own Choice"), *JKB*, April 28, 1983, p. 1; and "Family planning measures 'hopeful'," *CD* May 4, 1983, p. 3. One of the officials has stated in a letter to the author that the comments quoted in the first of these sources had been "lifted out of context." He also said that the IPPF visitors questioned their hosts about reports of infanticide and coercion in China and from his report of their responses it is apparent that the visitors received the standard answers, which they apparently accepted.

[108] XINHUA-English, Beijing, May 7, 1983, FBIS, No. 92, May 11, 1983, p. K12.

[109] XINHUA-English, Beijing, June 21, 1983, JPRS, No. 83,802, June 30, 1983, p. 48.

[110] "Human rights defined," *People*, London, Vol. 11, No. 1, 1984, p. 36.

Meanwhile, a number of organizations, both governmental and private, have become involved in activities broadly supportive of the Chinese family planning program. Most prominent among them is the UNFPA, which in June 1980 signed an agreement to provide $50 million to China during 1980–85 to be used for various population-related activities, including the 1982 census, demographic training, and family planning. UNFPA assistance in family planning included support for the establishment of a population information center and a training center for family planning workers.[112] When it became generally known outside China in the spring of 1983 that the Chinese leaders had embarked on a program of compulsory sterilization, IUD insertion, and abortion as a matter of national policy, the UNFPA was temporarily alarmed. Questioned by the *Washington Post* Beijing correspondent, United Nations officials who coordinated projects there said they were investigating whether the new policy violated United Nations principles. One was quoted as saying that "if there is a very explicit regulation that all couples with a second child must be sterilized, it could cause serious problems for the United Nations. . . . Compulsion in these matters is not acceptable." [113] Whatever the outcome of the investigation, the UNFPA projects continued. In February 1984, the UNFPA announced that it would provide another $50 million in assistance to China in 1985–89,[114] and in April Mr. Salas was quoted in a denial that the UNFPA has any evidence that its program in China supports coercive measures.[115]

But of all the foreign encouragements for the Chinese family planning program, none was more important symbolically than the United Nations population award conferred on Qian Xinzhong in 1983. In March it was disclosed that an award committee consisting of representatives from ten United Nations member countries, including China, had decided to honor Qian and the late Indian Prime Minister Indira Gandhi with the first of the newly instituted annual population awards.[116] This action caused some consternation among advocates of population control in other countries, who thought the selections ill-advised in view of the fact that China and India had the dubious distinction of being the only two countries in the world to attempt coercive family planning programs. The two awardees were both in positions of responsibility while the attempts were being made. However, no public demur was heard except from one of the five members of an advisory group chosen to assist the awards committee. In a letter to Mr. Salas, the Nobel laureate economist, Prof. Theodore W. Schultz, of the University of Chicago, denounced the committee's decision as a "travestry" and told the UNFPA to remove his name from any materials involving the awards. Schultz charged that the Chinese policies were responsible for the high rate of female infanticide in China.[117] The awards were formally presented in New York in September 1983 by United Nations Secretary-General Javier Perez de Cuellar, who expressed "deep appreciation" for the way in which the Chinese and Indian governments had "marshalled the resources necessary to implement population policies on a massive scale."[118]

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[111] Zhou Cipo, "Weiwending shijie renkou er nuli ("To Work Hard to Stabilize the World's Population") *Liaowang* (*Outlook*), No. 14, April 1985, p. 33; and "Woguo jihua shengyu gongzuo yinian bi yinian hao" ("China's Family Planning Work Is Doing Better Every Year"), *RMRB*, April 26, 1985, p. 1.

[112] Population Division, Economic and Social Commission for Asia and the Pacific, *Asian-Pacific Population Programme News*, Vol. 11, Nos. 1 & 2, 1982, pp. 22–24, "Teaching aids to boost family planning drive," *CD*, February 3, 1982, p. 1; and "Work starts on family planning training centre," *CD* March 17, 1982, p. 3.

[113] Michael Weisskopf, "China Orders Sterilizations for Parents," *loc. cit.* Requiring a "very explicit regulation" set an impossible standard for the incriminating evidence. The Chinese central authorities would never issue a directive in this form because that would make it impossible to shift the blame to lower levels if the adverse public reaction were too strong. Moreover, the authorities seldom publish family planning directives and certainly not those that contradict their claim that the program is not coercive.

[114] "UN aid for population planning," *CD*, February 25, 1984, p. 1.

[115] "Paying for Abortions," *loc. cit.*

[116] "Xinzhong, Gandhi Win Population Awards," *Popline*, Vol. 5, No. 3, April 1983, pp. 1 and 4.

The Chinese were at least equally appreciative of the award, which they not unreasonably interpreted as "evidence of worldwide concern and support" for their family planning program. Qian Xinzhong expressed his gratitude not only to the United Nations but also to other international organizations and friends who "support China's effort." The evidence of international approbation was useful in discouraging domestic criticism of the program because it seemed to show that responsible world opinion sided with the Chinese government on this issue. It was also useful in Chinese counterattacks against foreign critics, whose allegations that the program was coercive were denounced as "slander" and "distortion." [119]

The coercion issue again received international attention in the spring and summer of 1984, when a U.S. Senate subcommittee heard testimony on the matter and the House of Representatives debated whether U.S. contributions to the UNFPA and the IPPF were being used to support the Chinese program. Public discussion at that time was not well informed about the nature of the program and tended to focus on the one aspect of the program that was of high political salience in the United States—compulsory abortion—although Chinese families would probably regard compulsory sterilization as much more devastating. The policy issue was ultimately narrowed to the question of whether funds contributed by the United States were being used to pay for abortions, which the UNFPA could plausibly deny.[120] It did not deal with the much larger question of whether it was possible to support any aspect of the Chinese program without seeming to endorse all of it. As a result, the position of the United States as put forward at the International Population Conference in Mexico City in August 1984 would have little bearing on coercion in the Chinese family planning program, although it might hamper the IPPF if providing help for voluntary abortions in other countries.[121]

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[117] Bernard Nossiter, "Population Prizes from U.N. Assailed," *The New York Times*, July 24, 1983, p. 4. Contacted by the newspaper, Mr. Salas reportedly defended the awards and dismissed Schultz's allegations about infanticide as "an inference." But the same inference was drawn in Chinese sources in late 1982 and early 1983, until the foreign press began to repeat them, and it is strongly supported by the relevant demographic data from China. See above, pp. 44–46.

[118] "Perez de Cuellar Issues Warning On Overpopulation," *Popline*, Vol. 5, No. 9, October 1983, p. 4.

[119] For example, see Qian Xinzhong's remarks in August 1983 in XINHUA-English, Beijing, August 3, 1983, FBIS, No. 151, August 4, 1983, pp. K7–8.

[120] "Paying for Abortions," *loc. cit.;* and "Congress Debates Population Aid," *Population Today*, Vol. 12, No. 6, June 1984, pp. 3–4.

However, in February 1985, after the publication by the *Washington Post* in January of three articles by its Beijing correspondent, Michael Weisskopf, describing in detail coercive family planning practices in China, the U.S. Agency for International Development (AID) announced that it had decided to postpone the allocation of $23 million to the UNFPA pending a careful review of the UNFPA program.[122] Also in February, the UNFPA prepared a "briefing note," reportedly at the request of AID, in which it asserted that the Chinese government only advocates but does not require compliance with the one child limit, that couples who wish to have a second or even a third child can do so, that in many rural areas couples whose first child is a girl can now have a second, that the acceptance of the one child limit "can only be on a voluntary basis," and that the government has repeatedly indicated to the people of China that "coercion is under no circumstances permitted . . ."[123] All of these allegations are either incorrect or misleading, as the preponderant evidence from Chinese sources makes clear. After a review of the evidence, AID announced at the end of March that it would withhold $10 million of the $46 million previously appropriated by the Congress for the UNFPA, an amount equivalent to that spent by the UNFPA on China each year.[124]

The Chinese response was an angry reiteration of their position that population policy was "a matter of state sovereignty," that the U.S. decision was based on "distorted news reports," "slander," "rumors," and "smears," and that their family planning program was strictly voluntary.[125] In April, at the reception in Beijing, Mr. Salas reportedly told Premier Zhao that "My colleagues and I come to visit this time to reaffirm our support of China in the field of population activities."[126] In May, however, the Appropriations

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[121] "No aid to abortion promoters—US," *CD*, July 16, 1984, p. 1.

[122] "U.S. Withholds $23 Million From U.N. Population Fund," *The Washington Post*, February 6, 1985, p. A14; and "U.S. Delays Population Aid," *The Washington Post*, February 7, 1985, p. A10.

[123] United Nations Fund for Population Activities, "UNFPA and China: Briefing Note," February 9, 1985, pp. 3–5. This document cites the Party Central Committee "open letter" of September 1980, written during an anticoercion drive intended to ease the antagonisms generated by the one child program in 1979, and the March 1984 conference of family planning leaders, convened to announce a slight moderation of the extreme policies of 1983, but it ignores the 1983 policies themselves, which represented the peak in official coercion thus far, and it does not mention the the hardening of the line in the summer of 1984 that partially offset the moderating effects of Document No. 7. The UNFPA briefing note conveys the mistaken impression that the policy has been progressively relaxed in recent years. What has actually happened is, instead, a net escalation from 1978 through 1983, followed by a very limited retrenchment since the spring of 1984. The program remains highly coercive. See also George Archibald, "Pro-life, AID forces clash on U.S. aid to China's population control," *The Washington Times*, March 18, 1985, p. 7B.

[124] The Administration had previously taken the position that it would provide no further U.S. aid to any organization whose projects directly or indirectly supported abortion or coercive family planning practices, but an AID official reportedly said that the partial withholding of funds was intended to "give UNFPA a chance to clean up its act." See "U.S. Cutting Population Agency's Funds," *The Washington Post*, March 31, 1985, p. A7; and George Archibald, "AID seeks to cut U.N. population agency's funding," *The Washington Times*, April 1, 1985, p. 3A.

[125] "Wang Wei jiu Meiguo guojia kaifa shu jinashao xiang lianheguo renkou huodong jijin juankuan wenti fabiao tanhua" ("Wang Wei Issues Statement on Reduction of Donation by the United States Agency for International Development to the United Nations Fund for Population Activities"), RMRB, April 4, 1985, p. 4; and An Zhiguo, "US Funding Based on Slander," *BR*, Vol. 28, No. 15, April 15, 1985, pp. 4–5.

[126] "Woguo jihua shengyu gongzuo yinian bi yinian hao," *loc. cit.*

Committee the U.S. House of Representatives passed a resolution calling for the denial of funding to the UNFPA because of its support of the Chinese program.[127] The Chinese responded with letters to U.S. Officials warning that if U.S. funds to UNFPA were denied, U.S.-China relations would be "damaged."[128] On July 10, the House passed a resolution accusing China of "crimes against humanity" in its use of forced abortion and sterilization for population control and giving the U.S. President the authority to withhold funds from the UNFPA.[129] The upshot of the Congressional debate over the issue was to leave the decision up to the Reagan Administration, where it ultimately became the responsibility of AID Administrator M. Peter McPherson. On September 25, McPherson decided to withdraw the $10 million grant to the UNFPA on the gounds that the UNFPA was involved in a coercive program in China. In an interview, McPherson warned that U.S. support for the UNFPA next year was also in doubt, adding that "It will take a dramatic change in the way UNFPA does its business in China" to restore U.S. support.[130]

Whether the Chinese central authorities would make a more sincere effort to curb coercion in their family planning program if the rest of the world showed more sincerity in condemning it is not certain. Several Chinese spokesmen at the Mexico City conference insisted that any foreign attempt to make China change its population policies would be viewed as a violation of China's sovereignty, thus, in effect, declaring population policy out of bounds for international human rights interventions.[131] Despite such statements, the Chinese authorities obviously want foreign approval of their family planning program and are sensitive to foreign criticism, but they may feel that they need not take the criticism seriously so long as prestigious organizations in the population field, such as the UNFPA and the IPPF, continue to laud their success without an adequate examination of the means by which it was attained.[132]

THE CONSEQUENCES OF SUDDEN FERTILITY REDUCTION

The speedy reduction in fertility in China achieved through aggressive family planning measures has already begun to ameliorate some aspects of population pressure, but it may not in the long run prove an unmixed blessing. As with other extreme policies imposed on the Chinese people without careful consideration of the long-range effects, the Party leaders have been reluctant to entertain publicly the possibility of adverse outcomes and tend to suppress criticism by declaring that the policy is "correct," wise, and perfectly suited to China's current needs. As a result, the leaders are often slow to recognize that a policy is not working well unless a crisis ensues or there is a change of leadership.

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[127] "Opponents Hit Funding for U.N. Family Planning Agency," *Washington Memo*, The Alan Guttmacher Institute, May 29, 1985, pp. 3-5.

[128] Letter of June 7, 1985 from Wu Xueqian, Minister of Foreign Affairs of the PRC, to Secretary of State Schultz; and letter of June 9, 1985 from Han Xu, Ambassador of the PRC to the United States, to Thomas P O'Neill, Jr., Speaker of the U.S. House of Representatives.

[129] Daniel Southerland, "Chinese Leader Assails Congressional Vote," *The Washington Post*, July 12, 1985, pp. A27 and A32.

[130] Lionel Barber, "Schultz to Resolve Dispute Over Support for U.N. Population Fund, *The Washington Post*, September 18, 1985, p. A12; and Lionel Barber, "U.S. Reduces Birth Control Unit's Funds," *The Washington Post*, September 26, 1985, pp. A1 and A9.

[131] Shen Guoxing, "A Brief Introduction to China's Family Planning Program," (Statement at a press conference in Mexico City), August 9, 1984, pp. 4-6; and Xu Dixin, "On Population Control and Free Economy—Answering Questions by a China International Broadcasting Station Reporter," *SJJJDB*, Shanghai, November 26, 1984, JPRS, No. 85-007, January 16, 1985, p. 11.

[132] A UNFPA official was recently quoted as saying that the Chinese authorities had "really taken very seriously everything that the U.N. has suggested" and had "taken important steps" to deal with reported abuses in their family planning program. (See "U.S. Withholds $23 Million From U.N. Population Fund," *loc. cit.*) Of course, after the 20 million sterilizations of 1983, the need for coercion in family planning would have been significantly reduced. Forcible sterilization assures future compliance without strong measures.

Among the major examples of Party policies that proved disastrous for reasons that might have been forseen, the briefest was the Big Leap Forward, but mainly because, despite Mao's effort to silence its critics, the policy precipitated a famine so severe that it could not be ignored. The collectivization of agriculture in 1955-56 seriously damaged peasant morale and "enthusiasm for production" for over 20 years, until a new leadership under Deng Xiaoping replaced the collectives with the "production responsibility system" and the policy of letting peasants become "wealthy." This seems to have solved the problem of motivation, but at the cost of disrupting successful collective undertakings, the rural health system, and the rural family planning efforts. In both these cases, the modification of the mistaken policies brought an immediate remission of some of their worst effects, but even an instant change in family planning policies would not erase the marks already imprinted on the Chinese age-sex structure by the policies of the mid-1970s and early 1980s, which will be visible for the next 60 years or so and may have echoes and reverberations that last longer still. Chinese demographers have pointed out that demographic trends have an inertial property. They have also made population projections showing the effects of current policies on age composition in China during the next century. But, until late in 1983, their published writings tended to discount the possibility that age composition could be a cause of problems in the future.

In 1980, when a reaction set in against the coerciveness of the newly instituted one child policy, Chinese sources said that "some comrades" were worried that the policy could lead to the excessive aging of the population, to shortages of workers and military recruits, to an imbalance of the sexes, and to heavy welfare burdens for the state. Among the people there were fears that after three generations of the one child policy, the age structure of the Chinese family would follow a "4-2-1" pattern—four grandparents and one child supported by two working parents. The writers of press articles insisted that these fears were unfounded, that the problems would not arise soon, and that there would be plenty of time to deal with them later on. But in 1982 a demographer expressed concern about the effects of the one child policy on family structure, parent-child relations, family income and expenditures, social customs, moral and ethical concepts, and mass psychology. Many of the problems, he said, had not been studied yet, and he warned that history had a way of inflicting "punishments" on those who carried out unwise policies "blindly and subjectively." [133] In the same year, China sent a delegation to the United Nations conference on aging to find out how other countries were coping with the problem,[134] but still the official attitude as expressed in the press was that China would be able to solve its own aging problem in good time.[135]

In August 1983 one Chinese writer suggested that sudden changes in population growth rates could cause difficulties and that the low target population total set for the country for the year 2000 had its drawbacks. He added that the one child policy could mean that in 40 years' time some elderly couples would have no one to care for them and that it would be difficult to get only children to accept military service or work assignments far from home.[136] In November, a Chinese demographer said that the aging of China's population would be the "fastest in history" [137] and that China should begin at once to plan how it would support the increasing numbers of elderly persons. He suggested that it was time to consider adjusting the family planning program to keep the problem from becoming too serious.[138] In August 1984, when the central authorities were again worried about a relaxation of local family planning efforts, the same demographer altered his position somewhat, arguing that it would be "highly inappropriate" to overemphasize the problems of aging, as "some people" were doing, and "relax population control right now." [139] Other writers echoed the official position that the problem was under study and would surely be solved.[140]

One reason for the apparent lack of concern about the aging of the population may be the fact that the benefits to the state from a sudden reduction in fertility are immediate whereas the adverse consequences are mostly long-term. The declining birth rates of the 1970s have already eased the state's burden in providing child care, consumer goods for children, and primary schooling in much of the country. But about 1989, the size of cohorts entering the labor force will diminish sharply, reducing the oversupply of rural labor and the numbers of urban young people "waiting for employment." Shortly after that, the demands for housing for newly married couples should also ease considerably. Under any projection that is based on the 1982 census age-sex structure and is carried forward according to fertility assumptions reflecting current official policies and plans, the proportion of the population in the working ages will continue to increase until about the year 2010, when it will account for 65 percent of the total population. But the proportion of persons aged 65 and over will rise steadily from now on and very rapidly after 2010, reaching 25 percent by the year 2040 if present fertility restrictions are continued to the end of this century. Whether the Chinese economy can solve the problem of providing financial security for so many retirees even if the goals of modernization have been achieved by then is problematical, and there can be no assurance that the goals will be achieved on schedule, even if the plan for future population growth is fully realized. The rate of population growth has not been the only deterrent to China's economic development in the last 30 days, which has made gains in spite of the near doubling of the population. Other major obstacles pointed out by Chinese economists include overcentralized control of the economy and unrealistic planning and management, which are implicit in the Chinese administrative system and will continue to hamper development whatever is done about the population. If more developed economies sometimes have difficulty sustaining established social security systems when the number of beneficiaries is increasing more rapidly than the number of contributors, it is likely that China will encounter even greater difficulties in setting up an adequate system de novo under even more unfavorable demographic circumstances.

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[133] Zha Ruichuan, "Renkou guanxing ji qi dui woguo renkou fazhan de yingxiang" ("Population Inertia and Its Effects on China's Population Growth"), *RKYJJ*, No. 2, April 25, 1982, pp. 19-23.

[134] "Aging world poses problems," *CD*, July 9, 1982, p. 4; and "Grannies to outnumber the young," *CD*, July 24, 1982, p. 1.

[135] Bai Jiefu, "Work on Population and Planned Parenthood," *RKYJJ*, No. 5, October 25, 1982, JPRS, No. 84-011, February 1, 1982, p. 31.

[136] Gui Shixun, "Diqijiang: Weilai renkou ziran biandong yao youli yu shehui de fanshan" ("Lecture VII: The Rate of Change in Population Must Be Favorable to Social Development"), *Shehui* (*Society*), No. 4, August 20, 1983, pp. 61-65.

[137] The rapid aging of the population is a phenomenon common to all populations that have made a quick transition from high to low fertility. As the progressively larger cohorts of people born when fertility was still high and the population was growing rapidly reach the advanced ages and their places in the young and middle ages are taken by progressively smaller cohorts born during the years when fertility was falling and population growth slowing down, the numbers of the elderly rise, their proportion of the total population increases still more quickly, and the average age of the population also rises. Hence the population as a whole is said to be "aging."

[138] XINHUA-English, Beijing, November 8, 1983, JPRS, No. 84,857, December 1, 1983, p. 50; Wu Cangping, "Some Population Problems that Should Be Deliberated at an Early Date," *SJJJDB*, No. 165, December 12, 1983, FBIS, No. 8, January 12, 1984, pp. K3-6; and Wu Cangping, "Yindang zhuyi de liangge renkou wenti" ("Two Problems to Which We Should Pay Attention"), *Jingjixue wenzhai* (*Economics Digest*), No. 4, 1984, p. 58.

[139] Wu Cangping, "Problems of Old Age and Our Countermeasures," *RMRB*, August 20, 1984, JPRS, No. 84-065, October 2, 1984, p. 27.

[140] For example, see Fei Xiaotong, "Planning Population Growth and Distribution," *China Reconstructs*, Vol. XXXIII, No. 5, May 1984, p. 13; and Tian Xueyuan, "Cong renkou nianling jieguo biandong kan jihua shengyu gongzuo de weida chengjiu" ("Great Achievements Made in Family Planning Work as Shown by Changes in the Age Structure of the Population"), *JKBJHSYB*, August 31, 1984, pp. 1-2.

The social and political consequences of the sudden reduction in fertility are still harder to predict and may also be more difficult to resolve. Care for the elderly is not just a matter of providing food, clothing, shelter, and burial expenses; the need for health care will rise even more rapidly than the numbers of the elderly themselves, as will the need for such daily ministrations as were formerly tendered by family members at no cost to the state. Since the full impact of lower birth rates on these arrangements cannot easily be anticipated, there is no basis for the confident assurances that all such matters can be taken care of later.

The most profound and incalculable effects of the family planning program may be those that result from changes in family structure and in child rearing practices. Articles in the Chinese media have expressed concern about the personality and character of only children, doted on by parents and grandparents and treated by the state as privileged individuals in regard to health care, education, and employment opportunities. Some reports suggest that they are becoming spoiled, self-centered, inclined to immediate gratification, willful, disrespectful toward authority—in short, exactly the kind of people least adapted to life under a political system that emphasizes obedience and orthodoxy. There is also some danger of political disaffection among the generation of their parents, many of whom lost their opportunities for secondary and higher education during the Cultural Revolution, are now deprived of some of the satisfactions of parenthood by the family planning program, and face the prospect of neglect in their old age.

The disaffection may be all the more acute if the rewards of economic development seem insufficient to justify the deprivations imposed on the Chinese people. After all, they have had little voice in the national policy decisions that have affected their lives. Had they been consulted about population policy, many might have chosen to forego some of the "modernization" their leaders have planned for them in order to have more children. More than in many other countries, an important element in the quality of life for the people of China is the gratification afforded by family life and the rearing of children, which have been high on the Chinese scale of values for thousands of years. In the last analysis, the costs of the Chinese experiment with coercive family planning may prove rather high. If so, the burden of responsibility will rest not not just with the Party leaders who ordered and directed it and the Chinese demographers who rationalized and promoted it but also with the foreign population control advocates who applauded it and identified its goals with their own.

LABOR FORCE DEVELOPMENTS IN THE PEOPLE'S REPUBLIC OF CHINA, 1952-83

By Jeffrey R. Taylor*

CONTENTS

Page
I. Introduction 223
II. China's labor force, midyear 1982 223
III. Employment in China 230
  A. Employment by system of ownership 230
    1. 1952-1957: Early transformation of the ownership system 230
    2. 1958-1960: The Great Leap Forward 233
    3. 1961-1965: Recovery from the Great Leap Forward 234
    4. 1966-1976: The Cultural Revolution 235
    5. 1977-1983: Reform and restructuring 236
    6. Conclusions on employment by system of ownership 238
  B. Employment by branch of economic activity 239
    1. Employment by broad sectors, 1952-1983 240
    2. Employment by detailed sectors, 1965-1983 243
IV. Unemployment and underemployment in China 249
  A. Unemployment at midyear 1982 249
  B. Urban unemployment, 1977-1983 254
  C. Rural unemployment and underemployment 259

TABLES

1. Estimated Labor Force by Employment Status, Sex and Province, People's Republic of China, Midyear 1982 225
2. Estimated Labor Force Participation Rates by Region and Province, People's Republic of China, Midyear 1982 227
3. Labor Force Participation Rates for the People's Republic of China and other Areas 229
4. Employment by System of Ownership, People's Republic of China, 1952-1983 232
5. Employment by Branch of Economic Activity, People's Republic of China, 1965-1983 244
6. Distribution of Workers and Staff and Capital Construction Investment Within Industry, People's Republic of China, 1952-1983 248
7. Estimated Unemployment Rates by Region and Province, People's Republic of China, Midyear 1982 251
8. Unemployment Rates for the People's Republic of China and Some Other Areas 253
9. Urban Job Seekers, Finders and Unemployed, People's Republic of China, 1978-1983 255
10. Profile of Labor Service Companies, People's Republic of China, 1979-1983. 257

FIGURES

1. Employment by Broad Sectors, People's Republic of China, 1952-1983 241

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I. INTRODUCTION

Employment and unemployment affect both economic and political stability. China is no exception to this rule, yet understanding manpower developments in the country has historically been difficult because basic source materials were not published. Since 1981, a deluge of current and historical information on labor has been released in China, putting scholars in the uncomfortable position of having to decide what to leave out rather than what to include in writing overview articles such as this.

This article focuses on manpower in China in three general areas: measurement of the labor force, employment, and unemployment. Much of the discussion deals with trends within the past five years (particularly factors underlying the rapid growth in self-employment since 1978), though earlier periods are discussed to put current events in perspective. Wage developments, on which an entire book could be written, are not mentioned here, nor are recent census data showing midyear 1982 employment by economic sector, occupation, level of education and age groups. Readers interested in the latter subjects may wish to consult a recent U.S. Census Bureau report which analyzes preliminary data from the 1982 census relevant to China's working and nonworking population.[1]

An effort is also made here to predict future employment and unemployment trends. These predictions are based on an improved, but still incomplete record of the past. Readers should draw their own conclusions from these findings with caution.

II. CHINA'S LABOR FORCE, MIDYEAR 1982

A country's labor force is defined as those persons who are either working, or are willing and able to work but currently have no job—the employed and the unemployed. China's regular labor statistics make no attempt to formally measure this concept. It is nonetheless possible to use preliminary census results to estimate that the country's labor force at midyear 1982 was 546 million persons, 520 million of whom were employed and 26 million of whom were unemployed. China's labor force is not only the world's largest, but as shown below, a very high proportion of the population is economically active by international standards.

China's estimated labor force for midyear 1982 by sex and province is shown in Table 1. The most interesting aspect of this table is that it portrays the country's labor force, rather than just persons who are employed.[2] The labor force estimate for midyear 1982 is based on data from the ten percent sample tabulation of China's 1982 census results.[3] Employed persons include persons holding a regular job at the time of the census (July 1, 1982), persons lacking a regular job but who had worked for at least 16 days in the month preceding the census, and retirees who were working a month before the census and whose pension plus earnings equalled 100 percent of their original pay. Unemployment in this paper was estimated as the sum of persons awaiting unified state job assignment, persons awaiting work in cities and towns, and a residual category of unspecified nonworkers. It should be noted that only the unemployment component of China's labor force was estimated. The definition of unemployment used here is restrictive, but is still slightly more inclusive than the categories of nonworkers China's State Statistical Bureau appears to regard as economically active.[4]

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[1] Jeffrey R. Taylor, *Employment and Unemployment in China: Results from the Ten Percent Sample Tabulation of the 1982 Population Census, People's Republic of China*, forthcoming Foreign Economic Report (Washington, D.C.: U.S. Department of Commerce, Bureau of the Census, 1985).

[2] Statistical authorities in China have never published official labor force figures, largely because of an emphasis on collecting only employment statistics. Unemployment statistics, which form the other portion of the labor force, are gathered only for urban areas. This is common in developing countries, because of the problems involved in defining and measuring rural unemployment. Readers who plan to consult earlier papers by western authors on manpower developments in China are urged to take note of this absence of official labor force data. Earlier authors often used the term "labor force" when referring to employment statistics, so care should be taken not to confuse the labor force estimates shown in Table 1 with earlier figures under the same name.

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[3] Guowuyuan renkou pucha bangong shi, guojia tongji ju renkou tongji si [Population Census Office of the State Council and Department of Population Statistics, State Statistical Bureau, PRC], *Zhongguo 1982 nian renkou pucha 10% chouyang ziliao* [Ten Percent Sample Tabulation of the 1982 Population Census of China] (Beijing: Zhongguo tongji chubanshe, 1983). This source did not report nonworkers by economic status for Xizang (Tibet), so labor force estimates for this province could not be prepared and are omitted from Table 1.

[4] As earlier noted, China's State Statistical Bureau has never published official labor force figures as defined by international recommendations. It has, however, recently published a book which at one point discusses the portions of the working-age population that should be regarded as economically active (Li Kejian, ed., *Laodong tongjixue* [Labor Statistics] (Beijing: Zhongguo tongji chubanshe, 1982), p. 70). There, as in Table 1, working persons are regarded as economically active. The only nonworkers regarded as economically active in the book are persons awaiting unified state job assignment and persons waiting jobs in cities and towns. Table 1 includes these two categories of nonworkers in the unemployed portion of the labor force, but adds to them a residual category of nonworkers coded as "other" in the 1982 census. This was done in an effort to gain coverage of involuntary uemployment in rural areas, and to offset the unavoidable exclusion of economically active persons who had quit their jobs but were combined in the census tabulation with clearly nonactive retirees. For further discussion on the implications of these different definitions of China's economically active population, see Taylor, 1985, Appendix A.

TABLE 1. ESTIMATED LABOR FORCE BY EMPLOYMENT STATUS, SEX AND PROVINCE,
PEOPLE'S REPUBLIC OF CHINA, MIDYEAR 1982
(Thousands of persons)

Region/Province	Both Sexes			Men			Women		
	Total	Employed	Unemployed (estimated)	Total	Employed	Unemployed (estimated)	Total	Employed	Unemployed (estimated)
Total	546,015.86	520,389.79	25,626.07	305,388.17	293,038.52	12,349.65	240,627.69	227,351.27	13,276.42
East	163,603.83	156,677.64	6,926.19	91,639.43	88,349.66	3,289.77	71,964.40	68,327.98	3,636.42
Shanghai	7,697.24	7,471.70	225.54	4,065.49	3,959.46	106.03	3,631.75	3,512.24	119.51
Jiangsu	36,030.95	34,730.88	1,300.07	19,127.05	18,567.05	560.00	16,903.90	16,163.83	740.07
Zhejiang	21,889.53	20,892.08	997.45	13,273.55	12,768.01	505.54	8,615.98	8,124.07	491.91
Anhui	26,960.50	26,067.05	893.45	14,830.36	14,451.00	379.36	12,130.14	11,616.05	514.09
Fujian	12,570.02	11,760.88	809.14	7,654.61	7,253.13	401.48	4,915.41	4,507.75	407.66
Jiangxi	16,294.52	15,517.25	777.27	9,294.27	8,931.98	362.29	7,000.25	6,585.27	414.98
Shandong	42,161.07	40,237.80	1,923.27	23,394.10	22,419.03	975.07	18,766.97	17,818.77	948.20
North	62,996.65	59,649.97	3,346.68	36,893.58	35,201.67	1,691.91	26,103.07	24,448.30	1,654.77
Beijing	5,677.36	5,420.32	257.04	3,153.04	3,021.93	131.11	2,524.32	2,398.39	125.93
Tianjin	4,660.16	4,413.87	246.29	2,651.17	2,539.92	111.25	2,008.99	1,873.95	135.04
Hebei	29,281.05	27,749.13	1,531.92	17,334.75	16,584.44	750.31	11,946.30	11,164.69	781.61
Shanxi	13,641.53	13,041.81	599.72	7,880.07	7,566.17	313.90	5,761.46	5,475.64	285.82
Neimenggu	9,736.55	9,024.84	711.71	5,874.55	5,489.21	385.34	3,862.00	3,535.63	326.37
Northeast	44,639.77	40,665.59	3,974.18	28,024.46	25,794.61	2,229.85	16,615.31	14,870.98	1,744.33
Liaoning	19,302.19	17,709.85	1,592.34	11,582.34	10,717.44	864.90	7,719.85	6,992.41	727.44
Jilin	10,536.37	9,531.83	1,004.54	6,793.39	6,213.59	579.80	3,742.98	3,318.24	424.74
Heilongjiang	14,801.21	13,423.91	1,377.30	9,648.73	8,863.58	785.15	5,152.48	4,560.33	592.15
Northwest	36,479.68	34,950.39	1,529.29	20,114.16	19,379.67	734.49	16,365.52	15,570.72	794.80
Shaanxi	15,643.26	14,934.65	708.61	8,764.14	8,397.31	366.83	6,879.12	6,537.34	341.78
Gansu	10,802.50	10,362.20	440.30	5,816.14	5,623.45	192.69	4,986.36	4,738.75	247.61
Qinghai	1,913.07	1,811.93	101.14	1,029.37	984.29	45.08	883.70	827.64	56.06
Ningxia	1,892.00	1,802.65	89.35	1,030.16	988.11	42.05	861.84	814.54	47.30
Xinjiang	6,228.85	6,038.96	189.89	3,474.35	3,386.51	87.84	2,754.50	2,652.45	102.05
South	149,002.92	143,156.01	5,846.91	81,340.30	78,691.43	2,648.87	67,662.62	64,464.58	3,198.04
Henan	41,366.90	39,855.19	1,511.71	22,335.42	21,681.86	653.56	19,031.48	18,173.33	858.15
Hubei	26,718.55	25,769.23	949.32	14,609.30	14,165.64	443.66	12,109.25	11,603.59	505.66
Hunan	29,610.34	28,234.13	1,376.21	16,712.98	16,088.21	624.77	12,897.36	12,145.92	751.44
Guangdong	32,229.10	30,685.88	1,543.22	17,448.18	16,760.50	687.68	14,780.92	13,925.38	855.54
Guangxi	19,078.03	18,611.58	466.45	10,234.42	9,995.22	239.20	8,843.61	8,616.36	227.25
Southwest	89,293.01	85,290.19	4,002.82	47,376.24	45,621.48	1,754.76	41,916.77	39,668.71	2,248.06
Sichuan	57,341.39	54,619.94	2,721.45	30,682.96	29,539.96	1,143.00	26,658.43	25,079.98	1,578.45
Guizhou	14,611.47	13,958.54	652.93	7,634.01	7,327.29	306.72	6,977.46	6,631.25	346.21
Yunnan	17,340.15	16,711.71	628.44	9,039.27	8,734.23	305.04	8,300.88	7,957.48	323.40
Xizang	.	.	.	.	.	.	.	.	.

Note: All data pertain to persons age 15 and above, and are drawn or calculated from Guowuyuan renkou bangong shi, guojia tongji ju renkou tongji ju [Population Census Office of the State Council and Department of Population Statistics, State Statistical Bureau], *Zhongguo 1982 nian renkou pucha 10% chouyang ziliao* [Ten Percent Sample Tabulation on the 1982 Population Census of China] (Beijing: Zhongguo tongji chubanshe, 1983), pp. 12-17, 326-327. The ten percent figures were scaled up by a factor of ten to represent national totals. Unemployment is estimated as the sum of persons awaiting unified state job assignment, persons waiting for jobs in cities and towns, and nonworkers of unspecified status. Labor force estimates for Xizang (Tibet) have been omitted from the table because the ten percent sample tabulation did not have sufficiently detailed information for this province on nonworkers by economic status, meaning unemployment could not be estimated. Employment for Xizang is known, however, and is listed in the ten percent sample tabulation as 496.70 thousand for males, 491.24 thousand for females, and 987.94 thousand for both sexes combined.

Geographic distribution of the labor force in Table 1 mirrors population density patterns for China. Over 68 percent of the country's labor force is located in the North, East and South regions, yet these regions account for only 35 percent of China's total land mass. This concentration of human resources is not surprising when one considers that China is a predominantly agrarian country, and that these regions contain the country's most fertile lands.

As in probably all countries, there are more men than women in China's labor force. Table 1 shows that an estimated 56 percent of China's labor force is male, and 44 percent is female. Labor force participation rates (the estimated labor force divided by the population age 15 and over) are shown in Table 2. The estimated participation rates for China are remarkably high—almost 90 percent for men, 74 percent for women, and 82 percent for both sexes combined. Participation rates for men are relatively stable across all provinces and regions, but the rates for women show a great deal of variation, ranging from a low of 49 percent in Heilongjiang to a high of 85 percent in Guizhou and Sichuan. Regional differences in levels of agricultural activity and income can explain most of this variation. Agricultural production is very labor-intensive in China, and has traditionally required high participation for reasons of sheer survival. Nonagricultural production tends to be much less labor-intensive, and given the pattern of preferential hiring of men, there is less pressure for women to join the labor force in areas where it predominates. Low female participation rates in China's industrial heartland (the Northeast) and high female participation rates for women in the country's granary (the Southeast) make sense in this context. The effect that income level has on female activity rates appears to be less, but is still important. In poor areas, women work because failure to do so could result in per-capita incomes that are below the subsistence level. Incomes are high enough in richer areas so that failure of all women to work is not a matter of life or death. The percentage of women who are economically active is thus 83 percent in China's poorest province, Gansu (average 1982 per-capita income of 174 yuan, or $92), and 77 percent in China's richest province, Guangdong (average 1982 per-capita income of 382 yuan, or $202).[5]

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[5] Per-capita income data for 1982 are from Xue Muqiao, et al., eds., *Zhongguo jingji nianjian, 1983* [Economic Yearbook of China, 1983] (Beijing: Jingji guanli zazhishe, 1983), pp. V-126 and V-175.

TABLE 2. ESTIMATED LABOR FORCE PARTICIPATION RATES BY REGION AND PROVINCE
PEOPLE'S REPUBLIC OF CHINA, MIDYEAR 1982
(Age 15 and over, in percent)

Region and Province	Both Sexes	Men	Women
Total	82.1	89.6	74.1
East	81.8	89.9	73.4
Shanghai	79.1	84.1	74.1
Jiangsu	84.0	88.1	79.7
Zhejiang	79.9	93.5	65.2
Anhui	84.8	90.2	79.1
Fujian	76.5	90.7	61.6
Jiangxi	80.5	89.3	71.2
Shandong	81.8	90.1	73.4
North	79.7	90.7	68.0
Beijing	79.4	87.7	71.0
Tianjin	79.0	88.8	68.9
Hebei	79.4	92.1	66.1
Shanxi	81.3	89.9	71.8
Neimenggu	78.9	90.1	66.3
Northeast	72.2	88.7	55.0
Liaoning	76.1	89.7	61.9
Jilin	69.9	87.9	51.0
Heilongjiang	69.2	88.0	49.4
Northwest	82.8	88.3	76.9
Shaanxi	81.2	88.0	74.0
Gansu	86.5	89.6	83.0
Qinghai	84.1	88.3	79.7
Ningxia	83.8	88.3	78.9
Xinjiang	80.2	86.9	73.2
South	83.5	89.1	77.7
Henan	85.3	90.9	79.4
Hubei	82.9	88.6	77.0
Hunan	83.1	89.9	75.5
Guangdong	82.2	87.7	76.5
Guangxi	83.9	87.0	80.5
Southwest	87.5	90.4	84.4
Sichuan	87.8	90.9	84.5
Guizhou	86.7	88.6	84.6
Yunnan	87.0	90.1	83.8
Xizang	.	.	.

Sources: Table 1 and Guowuyuan renkou..., 1983, pp. 12-16 and 326-327.

By international standards, the proportion of China's population that is economically active is relatively high, as shown in Table 3. This is particularly true for women. Close to three-quarters of women in 1982 China were economically active, compared to fewer than half of women in most of the other areas shown.[6] The higher participation rate for Chinese women is not all good news, however, since it reflects in part the rural practice of withdrawing young women from school so that they can work at home and in the fields.[7] Women consequently have much lower literacy rates than men in China, and advance much less frequently to positions of responsibility. Preliminary census data indicate that women hold only 10 percent of leadership positions in party and government posts, but make up more than 40 perent of all workers in unskilled professions such as farming, commerce and service trades.[8]

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[6] Different practices in defining female employment in agriculture account for a large but unknown share of the variations in female labor force participation rates shown in Table 3.

[7] Sun Jingxin, "Zhongguo zaiye renkou zhuangkuang de guoji duibi" [Comparison of China's Employed Population with that of Other Countries], *Renkou yu jingji* [Population and Economics], No. 3, June 25, 1984, p. 9.

[8] Liu Zheng, "Guanyu zhongguo zaiye renkou de chubu fenxi" [Preliminary Analysis of China's Working Population], *Renkou yanjiu* [Population Research], No. 3, May 29, 1984, p. 43.

TABLE 3. LABOR FORCE PARTICIPATION RATES FOR THE PEOPLE'S REPUBLIC OF CHINA AND OTHER AREAS
(Percent)

Area	Both Sexes	Men	Women
China (1982, excluding Xizang)	82.1	89.6	74.1
North America			
United States (1982)	64.0	76.6	52.6
Canada (1982)	64.0	76.9	51.6
Europe			
France (1981)	56.8	69.9	43.1
Germany (1982)	53.4	70.0	38.9
Great Britain (1981)	62.6	78.6	48.1
Italy (1982)	47.4	66.6	29.9
Netherlands (1981)	51.4	71.8	33.3
East Asia			
Hong Kong (1981)	66.8	82.5	49.5
Japan (1982)	62.7	79.3	47.0
Korea, Republic of (1982)	56.8	72.5	42.2
Philippines (1982)	60.5	—	—
Taiwan (1982)	57.9	75.9	39.7
South and Southeast Asia			
Bangladesh (1979)	53.8	88.9	3.8
Indonesia (1980)	58.1	80.4	37.1
Malaysia, Peninsular (1979)	62.1	79.5	44.7
Pakistan (1981)	40.2	72.7	3.2
Singapore (1982)	63.4	81.5	45.2
Sri Lanka (1980/1981)	46.5	67.1	25.4
Thailand (1981)	71.5	78.4	64.6
Oceania			
Australia (1982)	61.8	78.4	45.4
New Zealand (1981)	58.0	77.6	39.1
Papua New Guinea (1980)	63.6	65.5	61.6
Other			
Soviet Union (1982)	74.2	82.8	67.1

Note: Age groups included in the labor force participation rate calculations above are persons 10 years and over for Bangaladesh, Pakistan, and Papua New Guinea, 14 and over for Korea and Italy, 15 and over for China, Australia, Canada, Hong Kong, Germany, Indonesia, Japan, Peninsular Malaysia, Netherlands, New Zealand, Philippines, Singapore, Taiwan, and Thailand, and 16 and over for the United States, France, Great Britain, and the Soviet Union. Age groups included in the labor force data for Sri Lanka are unknown. Data are from the latest available censuses, labor force surveys, household surveys, and official country estimates. Detailed sources are available upon request.

China has clearly the largest labor force in the world, and its labor force participation rates are high by international standards. It is unfortunate that sufficient data are not yet available to estimate labor force participation rates by age group, but this may be possible when the complete 1982 census results are published.

III. EMPLOYMENT IN CHINA

A. EMPLOYMENT BY SYSTEM OF OWNERSHIP

According to official employment statistics (which cover only men age 16–60 years and women age 16–55 years, rather than the census coverage of persons age 15 years and over) 460 million persons were working in 1983 China—a 154 percent increase over the 180 million employed in 1949.[9] If one were to identify the factor having the greatest impact on the nature of production in China over the 35 years spanned by these two dates, it would undoubtedly be changes in the system of ownership. Pursuit of rapid collectivization after 1955 fundamentally altered the workplace. Noncollective activities, such as individual commerce, were discouraged to the extent that private employment in China's cities and towns almost entirely disappeared.[10] Since the third plenary session of the 11th Central Committee of the Chinese Communist Party in late 1978, however, there has been a shift in priorities that once again allows private individual employment.

China's employment can be broken down into four categories on the basis of ownership of productive assets: staff and workers in state-owned enterprises, staff and workers in collectively-owned units in cities and towns, individual workers in cities and towns, and collective and individual workers in rural areas. Employment levels and percentage shares for each category from 1952 to 1983 are shown in Table 4. The following discussion provides an overview of the policies underlying changes in employment by ownership system shown in this table. Since most earlier western commentary on Chinese employment was based on incomplete data rather than the official figures in Table 4, the discussion begins in 1952.

1. 1952–1957: Early Transformation of the Ownership System

From 1952 to 1955, employment grew for all sectors except private individual enterprises in cities and towns, which lost just over a million workers a year due to the promotion of state-private joint ownership of assets. The pace of collectivization accelerated in October 1955, when the Communist Party's Central Committee endorsed Chairman Mao Zedong's July 1955 [illegible] progress in agricultural collectivization.[11] The er[illegible] socialization of productive activities was unrelenting. By the end of 1956, 96 percent of peasant households had joined cooperatives, and the vast majority of private handicraftsmen, merchants and peddlers had been collectivized as well.[12] Self-employment in cities and towns plummeted from almost six-and-a-half million in 1955 to 160 thousand in 1956. Virtually all of these individuals became staff and workers, as indicated by the jump in employment shown in Table 4 for these categories in 1956. Urban self-employment in China has never since approached the levels existing in the early 1950's.

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[9] Guojia tongji ju [State Statistical Bureau, PRC] *Guan*[illegible] [illegible]arty-[illegible] glorious years] (Beijing: Zhongguo tongji chuba[illegible] p[illegible] re rounded; the percentage increase is calculated from ur[illegible]

[10] The terms private employment, individual [illegible] are used interchangeably in this report. All refer to the Chinese ter[illegible] which strictly translates to "individual laborers."

[11] Guojia tongji ju [State Statistical Bureau], *Weida d*[illegible] Great Years] (Beijing: Renmin chubanshe, 1959), p. 24.

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[12] Ibid, p. 25.

TABLE 4. EMPLOYMENT BY SYSTEM OF OWNERSHIP
PEOPLE'S REPUBLIC OF CHINA, 1952-1983

	Number (Millions of Persons)					Percent Distribution				
		Staff and Workers					Staff and Workers			
Year	Total	State-Owned Units	Collectively-Owned Units in Cities and Towns	Individual Workers in Cities and Towns	Collective and Individual Workers in Rural Areas	Total	State-Owned Units	Collectively-Owned Units in Cities and Towns	Individual Workers in Cities and Towns	Collective and Individual Workers in Rural Areas
1952	207.29	15.80	0.23	8.83	182.43	100.0	7.6	0.1	4.3	88.0
1953	213.64	18.26	0.30	8.98	186.10	100.0	8.5	0.1	4.2	87.1
1954	218.32	18.81	1.21	7.42	190.88	100.0	8.6	0.6	3.4	87.4
1955	223.28	19.08	2.54	6.40	195.26	100.0	8.5	1.1	2.9	87.5
1956	230.18	24.23	5.54	0.16	200.25	100.0	10.5	2.4	0.1	87.0
1957	237.71	24.51	6.50	1.04	205.66	100.0	10.3	2.7	0.4	86.5
1958	266.00	45.32	6.62	1.06	213.00	100.0	17.0	2.5	0.4	80.1
1959	261.73	45.61	7.14	1.14	207.84	100.0	17.4	2.7	0.4	79.4
1960	258.80	50.44	9.25	1.50	197.61	100.0	19.5	3.6	0.6	76.4
1961	255.90	41.71	10.00	1.66	[illegible]	100.0	16.3	3.9	0.6	79.1
1962	259.10	33.09	10.12	2.16	213.73	100.0	12.8	3.9	0.8	82.5
1963	266.40	32.93	10.79	2.31	220.37	100.0	12.4	4.1	0.9	82.7
1964	277.36	34.65	11.36	2.27	229.08	100.0	12.5	4.1	0.8	82.6
1965	286.70	37.38	12.27	1.71	235.34	100.0	13.0	4.3	0.6	82.1
1966	298.05	39.34	12.64	1.56	244.51	100.0	13.2	4.2	0.5	82.0
1967	308.14	40.06	12.99	1.41	253.68	100.0	13.0	4.2	0.5	82.3
1968	319.15	41.70	13.34	1.26	262.85	100.0	13.1	4.2	0.4	82.4
1969	332.25	43.35	13.79	1.11	274.00	100.0	13.0	4.2	0.3	82.5
1970	344.32	47.92	14.24	0.96	281.20	100.0	13.9	4.1	0.3	81.7
1971	356.20	53.18	14.69	0.81	287.52	100.0	14.9	4.1	0.2	80.7
1972	358.54	56.10	15.24	0.66	286.54	100.0	15.6	4.3	0.2	79.9
1973	366.52	57.58	15.79	0.51	292.64	100.0	15.7	4.3	0.1	79.8
1974	373.69	60.07	16.44	0.36	296.82	100.0	16.1	4.4	0.1	79.4
1975	381.68	64.26	17.72	0.24	299.46	100.0	16.8	4.6	0.1	78.5
1976	388.34	68.60	18.13	0.19	301.42	100.0	17.7	4.7	0.0	77.6
1977	393.77	71.96	19.16	0.15	302.50	100.0	18.3	4.9	0.0	76.8
1978	398.56	74.51	20.48	0.15	303.42	100.0	18.7	5.1	0.0	76.1
1979	405.81	76.93	22.74	0.32	305.82	100.0	19.0	5.6	0.1	75.4
1980	418.96	80.19	24.25	0.81	313.71	100.0	19.1	5.8	0.2	74.9
1981	432.80	83.72	25.68	1.13	322.27	100.0	19.3	5.9	0.3	74.5
1982	447.06	86.30	26.51	1.47	332.78	100.0	19.3	5.9	0.3	74.4
1983	460.04	87.71	27.44	2.31	342.58	100.0	19.1	6.0	0.5	74.5

Source: Guojia tongji ju [State Statistical Bureau], *Guanghui de sanshiwu nian* [Thirty-Five Glorious Years] (Beijing: Zhongguo tongji chubanshe, 1984), pp. 152-153. Percentages may not add exactly to 100.0 because of rounding. The employment total for 1982 differs from that shown in Table 1 because of differences in coverage. The primary difference is that Table 1 employment figures are for all persons age 15 and above, whereas the regular employment statistics shown here include males age 16-60 and females age 16-55.

2. 1958-1960: The Great Leap Forward

In 1958, total employment increased by an unprecedented 28 million persons in a single year. Most of this increase occurred from nearly a doubling of staff and workers in state-owned enterprises, which in turn took place because of the single-minded pursuit of doubling steel output that was the hallmark of China's Great Leap Forward.[13] From 1958 to 1960, the immense manpower required for state-run industrial enterprises to meet unreasonably ambitious plan objectives were met by recruiting new entrants to the work force (such as housewives and students), and by diverting existing workers from other activities. The activity hardest hit by employment diversion was agriculture. Reportedly 23 million peasants were recruited away from rural collectives to increase industrial output in urban areas over these three years, and another 40 million peasants in the countryside were diverted from farming to work on other projects.[14] Farm tools and livestock were transferred in some places to support rural small-scale smelters, and several tens of millions of peasants were deployed to the mountains to look for mineral deposits.[15] Interestingly, the statistics on which Table 4 are based shown an increase in the rural collective work force of 7 million in 1958 and a decline in the same of only 6 million workers in 1959 despite the massive transfers of labor from traditional rural endeavors. The explanation for this appears to be that outflows of rural labor were partially compensated by substantial increases in female employment. In rural areas the proportion of women working rose from 65-80 percent in 1957 to 90 percent in 1958, a percent that was maintained through at least 1960.[16]

The presumption that higher employment participation by all groups in rural areas would permit agricultural output to grow unabated while laborers were siphoned off to work in urban industrial and construction facilities ultimately proved to be the undoing of the Great Leap Forward. The 1958 crop of food grain was reportedly good, but much of it rotted in the fields due to shortages of harvesting manpower.[17] Bad weather contributed to three years of successive decline in the gross value of agricultural output, starting in 1959. The resultant food shortages caused widespread starvation in rural areas, and China's work force fell by almost 7 million persons from 1958 to 1962. Total excess deaths attributable to famine conditions have been estimated at 30 million, suggesting that the

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[13] Feng Lanrui and Zhao Lukuan, *Zhongguo chengzhen de jiuye he gongzi* [Urban Employment and Wages in China] (Beijing: Renmin chubanshe, 1982), p. 4.

[14] Zeng Qixian, "Zhongguo jingji fazhan zhong de jiuye wenti" [Employment in China's Economic Development], in Xu Dixin et al., eds., *Zhongguo guomin jingji fazhan zhong de wenti*" [Issues in China's Economic Development] (Beijing: Zhongguo shehui kexue chubanshe, 1981), p. 115. It is unlikely that these peasants engaged in nonfarm activities full-time.

[15] Liu Suinian, "'Tiaozheng, gonggu, chongshi, tigao' bazi fangzhen de tichu ji zhixing qingkuang" [The Adoption and Implementation of the Eight-Character Policy of 'Readjustment, Consolidation, Reinforcement and Elevation'], *Dangshi yanjiu* [Research in Party History], Number 6, 1980, p. 22.

[16] Marina Thorborg, "Chinese Employment Policy in 1949-78 with Special Emphasis on Women in Rural Production," in U.S. Congress Joint Economic Committee, *Chinese Economy Post-Mao* (Washington, DC: U.S. Government Printing Office, 1978), p. 570.

[17] Liu Suinian, 1980, p. 22.

Great Leap Forward was one of the most disastrous economic experiments in modern history.[18]

3. 1961–1965: Recovery From the Great Leap Forward

As early as April 1959, Chen Yun (then Communist Party vice-chairman) argued that there had been over-recruitment of rural laborers by urban enterprises in 1958 and that many should be returned to the countryside lest the demand for foodsuffs exceed supply.[19] Chen's views were incorporated in the State Planning Commission's September 1960 report to the Central Committee, and formally adopted by the ninth plenary session of the eighth party congress as part of the famous "eight-character" policy for national recovery in January 1961.[20] By the end of 1961, state-owned urban enterprises had trimmed their employment rolls by 8.7 million staff and workers who had been recruited from the countryside.[21]

This was just an interim measure. At an expanded standing committee meeting of the Political Bureau called by the Central Committee in February 1962, Chen Yun advocated further reductions of the urban population and urban worker layoffs to avert a budgetary deficit and continued drawing down of state grain reserves.[22] To drive the point home, the Central Finance and Economy Team (headed by Chen Yun) submitted a report to the Central Committee arguing for a streamlining of the urban population by 13 million persons in 1962, and a reduction of urban workers and staff by 8 million persons.[23] The Central Committee not only endorsed the description of China's economic problems and proposed solutions in this report, but ordered even more severe reductions of 10 million urban staff and workers and 20 million urban residents overall.[24] Staff and workers in state-owned urban enterprises ultimately declined by 8.6 million persons in 1962, and fell by an additional 160 thousand in 1963. Employment growth from 1960 to 1963 for collective and individual workers in rural areas in Table 4 corresponds very closely to the employment dropoff for urban staff and workers because of the policies described above.[25]

Throughout the turmoil of the Great Leap Forward and its aftermath, the number of self-employed workers increased every year. Annual average growth in the number of these workers was 14 percent from 1958 to 1963, and small employment booms appeared in both 1960 and 1962. An ominous trend began in 1963, however, when despite an overall rise in the number of private individual workers, their employment in the commerce, catering and service trades fell by 50 thousand persons.[26] The fall-off in urban self-employment spread to those in handicraft industries, agricultural pursuits and cultural activities in 1964 and 1965, this time contributing to an actual decline in total private employment. This was a prelude to the assault on individually-run enterprises that was pursued in earnest during the Cultural Revolution.

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[18] Stephens Broening, "The Death of 30 Million Chinese," *The Baltimore Sun*, April 26, 1984, p. A19. The estimation of 30 million excess deaths attributable to famine resulting from the Great Leap Forward's failure was made by Dr. Judith Banister, Chief of the China Branch, Center for International Research, U.S. Bureau of the Census.

[19] Chen Yun, "A Letter to Comrades in the Central Finance and Economics Small Group," (April 1959), in Nicholas R. Lardy and Kenneth Lieberthal, eds., *Chen Yun's Strategy for China's Economic Development* (New York: M.E. Sharpe, Inc., 1983), p. 114.

[20] Liu Suinian, 1980, p. 21. The "eight-character" policy title translates as "readjustment, consolidation, reinforcement and elevation."

[21] Ibid, p. 27.

[22] Chen Yun, "The Current Financial and Economic Situation and Some Methods for Overcoming Difficulties," (February 1962), in Lardy and Lieberthal, 1983, p. 195.

[23] Liu Suinian, 1980, pp. 26–27.

[24] Ibid, p. 27.

[25] Employment of staff and workers fell by 17.5 million from 1960 to 1963, and the number of rural workers rose by 22.8 million. It is likely that a large number of furloughed staff and workers went to suburban communes.

4. 1966–1976: The Cultural Revolution

Cultural Revolution policies affecting employment were particularly far-reaching, and self-employment in urban areas declined greatly during this period. Under the battlecry of "Cut off the tail of capitalism," the assets of private vendors were seized, and the vendors themselves forced underground or into collective activities. Urban self-employment fell from 1.6 million in 1966 to 190 thousand in 1976.[27] In the two years of power struggle after the death of chairman Mao Zedong in 1976, private individual employment in urban areas reached its low point of 150 thousand workers.

The "rustication" of urban youths pursued during the Cultural Revolution also had a substantial impact on employment by system of ownership.[28] Many schools were closed, and 14–17 million urban middle school graduates were dispatched to rural areas to participate in collective labor and help establish a new class of peasant intellectuals.[29] This unpopular urban exodus had the unfortunate side-effect of limiting the pool of available labor in cities and towns, prompting urban enterprises to recruit 13–14 million laborers from rural areas to fill worker and staff positions.[30] One can see the waves of humanity that washed back and forth across China reflected vividly in the country's official employment statistics. In 1965, the year before the Cultural Revolution, staff and workers in state-owned enterprises grew 2.7 million and rural collective and individual employment grew 6.3 million. From 1966 to 1969, annual employment growth in state-owned enterprises never exceeded two million persons a year, yet employment in rural collectives jumped by more than nine million every year as these youths were sent to join in rural activities. The flow was reversed from 1970 to 1971; rural employment increases fell to pre-1966 levels as peasants were recruited for urban work, but annual employment growth for staff and workers in state-owned enterprises was more than twice as high as in the preceding four years. Comparisons such as these for subsequent years suggest that there was a large exodus of urban youths to the countryside in 1973, and that sizable numbers of rural laborers were recruited to urban staff and worker positions in 1975 and 1976.

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[26] Guojia tongji ju, *Guanghui* . . . ., 1984, p. 155.

[27] Ibid, p. 155. Readers should be aware that although these are official figures, they appear to be very crudely estimated. The official statistics show a drop in these workers of exactly 150 thousand for each year between 1966 and 1974. This suggests that the State Statistical Bureau had accurate survey data on the total number of individual laborers for only 1965 and 1974, and imputed the intervening years by simply drawing a straight line through these two points. Official employment data for staff and workers in collectively-owned enterprises from 1967–1974 and collective and individual employment in rural areas from 1966–1968 appears to be similarly estimated.

[28] A description of this policy may be found in Thomas P. Bernstein, *Up to the Mountains and Down to the Villages* (New Haven: Yale University Press, 1977).

[29] Feng Lanrui and Zhao Lukuan, 1982, p. 6, claim a figure of 14 million "rusticated" youths over the period 1966–1976. Zeng Qixian, 1981, p. 116 claims the figure should be 16 million youths. Finally, a figure of 17 million urban youths sent to the countryside is claimed by Kang Yonghe, "Zhongguo chengzhen de laodong jiuye" [Employment in Chinese Cities and Towns], *Renkou yanjiu* [Population Research], No. 1, 1982, p. 17, and Wu Youren "Guanyu woguo shehuizhuyi chengshihua wenti" [Problems of Socialist Urbanization in China], *Renkou yu jingji* [Population and Economy], No. 1, 1980, p. 20.

[30] A figure of 13 million urban in-migrants is cited by Kang Yonghe, 1982, p. 17. The 14 million figure is cited by Feng Lanrui and Zhao Lukuan, 1982, p. 6, and Zeng Qixian, 1981, p. 116.

5. 1977–1983: Reform and Restructuring

The odd exchange of urban youth for rural laborers during the Cultural Revolution appears to have elicited little debate from 1966 to 1976, but by the latter half of the 1970's it became apparent that the policy was unworkable over the long term. The success of these exchanges hinged on the willingness of urban youth to stay in rural areas for extended periods until urban jobs could be found for them. By late 1978 the patience of many of those who had been sent to rural areas had run out and they returned to cities and towns in droves.[31] At the same time, the unpopular practice of sending recent urban middle-school graduates to rural areas was temporarily discontinued, further adding to the number of persons looking for urban jobs.[32] Finally, evidence suggests that urban enterprises continued to recruit more laborers from rural areas in 1978, despite the growing number of urban unemployed.[33] This created an enormous problem for urban labor bureaus, who were suddenly forced to find jobs for almost twice the usual number of job applicants. It also proved to be the catalyst for another fundamental shift in the structure of employment by system of ownership.

Up to this point, emphasis had been placed on expanding the scope of state-owned enterprises in the economy, largely at the expense of collectively and individually-owned operations.[34] Employment of staff and workers at state-owned enterprises accordingly grew at an annual average rate of 6 percent from 1963 to 1978, compared to 4 percent growth rate for staff and workers in urban collectives and an annual average decline of 17 percent in urban self-employment. Expanding employment in state-owned enterprises was an expensive proposition, however. It took an average investment of 9,000–10,000 yuan to add a single worker to the payroll of a state-owned enterprise, compared to 2,000 yuan for collectively-owned enterprises and only 900 yuan for individual ventures.[35] At the December 1978 third plenary session of the Central Committee, widespread reforms were proposed that ultimately forced the government to expand avenues of employment in the urban private and collective economy. These reforms called for large increases in agricultural procurement prices, while guaranteeing that urban retail prices for foodstuffs would remain stable. This obligated the government to increase urban food subsidies, which contributed to an unprecedented budget deficit of 17 billion yuan in 1979.[36] Faced with both this deficit and the reality of millions of persons clamoring for jobs in urban areas, China's leaders concluded that they could scarcely afford the luxury of further promoting only state-sector employment.

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[31] John Philip Emerson, "Urban School-Leavers and Unemployment in China," *The China Quarterly*, March 1983, p. 7.

[32] This appears to have occurred in response to tentative regulations released by the Central Committee on December 12, 1978, which were based on findings from a national work conference on "rusticated youths" which took place in Beijing from October 31 to December 10, 1978. For details, see Thomas B. Gold, "Back to the City: The Return of Shanghai's Educated Youth," *The China Quarterly*, December 1980, especially p. 756.

[33] Employment of rural collective and individual laborers grew by only 920 thousand in 1978, compared to growth of 1.08 million in 1977 and 1.96 million in 1976. Cohorts reaching employment age in 1978 should have been substantially larger than those of 1976 and 1977, because the crude birth rate for their year of birth (1962) is almost twice as high as in the two preceding years. Since growth in the rural work force was actually lower in 1978 than in 1976 and 1977, recruitment of rural workers by urban enterprises must have been on the upswing. For crude birth rate estimates from 1953 to 1982, see Judith Banister, "An Analysis of Recent Data on the Population of China," *Population and Development Review*, Vol. 10 No. 2, June 1984, p. 254.

[34] Feng Lanrui and Zhao Lukuan, 1982 pp. 10–11, 15.

A structural change began to take place in 1979. Employment growth in collective and private individual enterprises exceeded employment growth in state-owned facilities. Collective and private individual employment rose sharply in 1979 as urban areas relied less on municipal labor bureaus and more on ad hoc organizations (such as labor service companies) to find jobs for the unemployed. The Central Committee gave its blessing to the changes afoot when it convened the first national conference on employment in August 1980, stating not only its unqualified support for the continued growth in collective and self-employment, but advocating that state-owned enterprises assist young people in establishing their own cooperative ventures as well.[37] The status of self-employment was further solidified by the publication of a July 1981 State Council regulation urging the expansion of private nonagricultural activities, and setting clear guidelines for their regulation.[38] Expanding these new avenues of employment met with some resistance in certain regions, prompting the Central Committee and the State Council to issue in October 1981 a joint decision affirming that multiple systems of ownership could coexist indefinitely, and that the easing of urban unemployment was impossible without expanding employment in the collective and private individual sectors.[39] Statistics for later years confirm that these pronouncements had the intended effect: from 1979 to 1983, annual average employment growth was five percent in urban collectives, 64 percent in private urban ventures, yet only three percent in state-owned enterprises.

The trend toward employment under a multiplicity of ownership systems begun in 1979 will probably be a lasting feature of China's economy in years to come. On October 20, 1984, the 12th Central Committee convened its third plenary session, and published a remarkable communique detailing widespread reforms and policies it intends to pursue in coming years. The following excerpt from the communique sums up what the future holds as regards employment by system of ownership:[40]

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[35] These figures represent average ratios for total funds (the sum of fixed and circulating assets) to total employment for each class of ownership. Data for state and collectively-owned enterprises are from Zhao Lukuan and Feng Lanrui, 1982, p. 11. Data for individual ventures is from Chen Naixing, "Shilun woguo xian jieduan de geti jingji" [China's Individual Economy at the Present Stage], *Jingiji wenti* [Economic Issues], No. 1, 1983, p. 9.

[36] Text of the communique from the third plenum in 1978 may be found in FBIS, December 26, 1978, pp. E4-E13. The budget deficit statistic is from Guojia tongji ju [State Statistical Bureau], *Zhongguo tongji nianjian, 1983* [Statistical Yearbook of China, 1983] (Beijing: Zhongguo tongji chubanshe, 1983), p. 445.

[37] Feng Lanrui and Zhao Lukuan, 1982, pp. 19–20.

[38] Xinhua she [New China News Agency], "Renzhen fuchi chengzhen fei nongye geti jingji fazhan" [Conscientiously Support the Development of the Urban Nonagricultural Individual Economy], *Renmin ribao* [People's Daily], July 16, 1981, p. 2.

[39] Zhonggong zhongyang, guowuyuan [Central Committee of the Chinese Communist Party and the State Council], "Guanyu guangkai menlu, gaohuo jingji, jiejue chengzhen jiuye wenti de ruogan jueding (zhaiyao)" [Decision on Opening New Channels, Enlivening the Economy and Solving the Problem of Urban Employment (Abstract)], in Xue Muqiao et al., eds., *Zhongguo jingji nianijian, 1982* [Economic Yearbook of China, 1982] (Beijing: Jingji guanli zazhishe, 1982), pp. II-84 to II-85.

> State-owned enterprises constitute the leading force in China's socialist economy and are decisive in ensuring our socialist orientation and the steady growth of our entire national economy. But their consolidation and development should not be predicated on restriction and exclusion of other economic forms and other methods of management. The collective economy is an important component of the socialist economy, and we can give the collectives a free hand in running enterprises in many areas of production and construction. . . . [The individual economy] is a necessary and valuable adjunct to the socialist economy and is subordinate to it. At present, we should try to remove obstacles in the way of the collective economy and individual economy in cities and rural towns, create conditions for their development and give them the protection of the law. . . . It is our long-term policy and the need of socialist development to promote diversified economic forms and various methods of operation simultaneously.

6. Conclusions on Employment by System of Ownership

The most obvious conclusion that can be drawn regarding patterns of employment by system of ownership is that the country has gone in a full circle with regard to self-employed workers. Article after article now parades the successes of these urban entrepreneurs before viewers, while bemoaning the privations suffered by buyer and seller alike during the Cultural Revolution. It is rarely acknowledged, however, that few young people would choose self-employment over employment in a state-owned enterprise if given the choice. A recent sample survey of 200 self-employed youth in the city of Harbin revealed that fully 70 percent were uneasy about working in the private individual sector.[41] The main reasons for this uneasiness were that they feared government policy regarding self-employment could change (70 percent), and there was no security because of the absence of labor insurance and other benefits (78 percent). These sentiments have also been expressed by self-employed youth in Beijing and Shanghai.[42] Surveys such as these indicate that employment in a state-owned enterprise is the preferred alternative, but it is important to note that income is not a motivating factor. A survey of self-employed workers in 1981 Beijing showed their average monthly net income to be 97 yuan—substantially higher than the average monthly income in Beijing state-owned enterprises of 73 yuan, and higher yet than the average monthly income in Beijing collectively-run enterprises for that year of 54 yuan.[43] It is instead the social approval, generous benefits and security provided by state-owned enterprises that make these jobs so appealing. These sentiments may change if the urban sector reforms voiced in October 1984 during the third plenary session of the 12th Central Committee are actually carried out, for they are aimed squarely at breaking the "iron rice bowl" for state-sector employees who do not earn their keep.[44]

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[40] Zhonggong zhongyang [Central Committee of the Chinese Communist Party], "Guanyu jingji tizhi gaige de jueding" [Decision on Economic System Reform], *Renmin ribao* [People's Daily], October 21, 1984, p. 3. The entire communique is translated in FBIS, October 22, 1984, pp. K1-K19.

[41] Tian Jie, Bo Huiru and Zhao Pu, "Kaipi geti jingji de jiuye chudao" [Open up Channels of Employment in the Individual Economy], in Zhongguo shehui kexue yuan qingshao nian yanjiusuo, quingnian laodong yanjiu shi [Youth Labor Research Office, Institute of Youth Research, Chinese Academy of Social Sciences], ed., *Qingnian jiuye de tansuo yu shijian* [An inquiry into Employment of Youth and its Practice] (Beijing: Shehui kexue chubanshe, 1983), pp. 249-251.

[42] See Zhang Hao, Chen Jian and Fang Kuan, "Beijing shi cheng chu qingnian congshi geti jingying quingkuang de diaocha" [Survey of the Status of Youth Working in the Individually-run Sector in Beijing Municipality], in Zhongguo shehui kexue yuan . . ., 1983, pp. 263 and 268-269, and Zhou Yinjun and Chen Rufeng, "Shanghai shi nu qingnian jiuye wenti chutan" [Preliminary Inquiry into the Employment of Female Youths in Shanghai], in Zhongguo shehui kexue yuan . . ., 1983, pp. 332 and 334-335.

Since individual and collective enterprises are generally more labor intensive than state-owned enterprises, China's leaders are probably right that they are better ownership forms for rapidly expanding employment. But are they more efficient? Western economists would say yes, if for a given industry a greater reliance on collective and individual production techniques allows output to rise by simply using labor and other inputs in different proportions, given a fixed budget and fixed input prices.[45] This may in fact be true in China, though it has never formally been put to the test. In fact, the compatibility of production technology with efficiency in resource use has never really been used to justify increased or decreased employment under any particular system of ownership in China. This is a significant, but lamentable finding. The enunciation of the October 1984 urban sector reforms by the State Council should enable enterprise managers to address this issue more clearly by giving them greater control over hiring and firing. This effectively decentralizes the decision where people should work, and represents a notable departure from the heavy-handed techniques used in earlier years to shepherd workers into politically-sanctioned sectors.

B. EMPLOYMENT BY BRANCH OF ECONOMIC ACTIVITY

Lack of data has traditionally hamstrung the efforts of scholars to trace the history of employment by branch of economic activity in China. Even the best western studies prior to 1981 relied extensively on incomplete official statistics to try and reconstruct sectoral employment statistics.[46] As late as 1981, the only data of this sort available were those for staff and workers—a component of all employees, comprising only about 25 percent of the total.[47] Not until the October 1982 publication of China's first statistical yearbook were western scholars provided with their first look at official statistics on employment by branch of economic activity covering all ownership systems.[48] The volume of employment data of this sort has grown every year since.

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[43] The average 1981 net income figure for individual laborers in Beijing is from Zhang Hao, Chen Jian and Fang Kuan, 1983, p. 259. Average per-capita monthly income figures for workers in state-owned and collectively-run enterprises in 1981 are calculated from annual data in Guojia tongji ju [State Statistical Bureau, PRC], *Zhongguo tongji nianjian, 1981* [Statistical Yearbook of China, 1981] (Beijing: Zhongguo tongji chubanshe, 1981), p. 425.

[44] The "iron rice bowl" (tie fanwan) is a shorthand expression used in China to describe the lucrative benefits that accompany employment in a state-owned enterprise: high pay, and generous health, housing, education and retirement benefits. Employees are almost never fired, however incompetent, and compensation has traditionally borne no relation to effort. Reforms called for in the communique from the 12th Central Committee's third plenary session include giving enterprise managers greater control over hiring and firing of employees, linking wages and bonuses more closely with enterprise profits, widening wage scales to permit managers to reward achievers and punish slackards, and imposing measures to guarantee strict labor discipline. Details of these may be found in articles III and VII of Zhonggong zhongyang, 1984, p. 2, and translated into English in FBIS, October 22, 1984, pp. K5-K7 and K12-K14.

[45] Microeconomics textbooks usually represent efficiency in production by a showing a graph where a firm's cost function is tangent to one if its production isoquants (a rectangular hyperbola representing all combinations of inputs that will produce the same level of output). More formally, efficiency is achieved when the ratio of marginal products for any two of the inputs is equal to their price ratios.

[46] A particularly good example of this approach is John Philip Emerson's *Nonagricultural Employment in Mainland China: 1949-1958*, International Population Statistic Report, Series P-90, No. 21 (Washington, D.C.: U.S. Bureau of the Census, 1965).

The following analysis confirms what has long been suspected regarding sectoral employment trends in China: (1) agricultural employment continues to dominate in China; (2) there has nonetheless been a long-term decline in the share of total workers in agriculture, most of which is accounted for by growth in industrial employment; (3) within industry, an earlier emphasis on employment in heavy industry is slowly being reversed as light industrial employment rises; and (4) the most rapid sectoral employment growth rates in recent years have been in nonagricultural sectors other than industry, particularly construction and commerce.

1. Employment by Broad Sectors, 1952–1983

Figure 1 shows patterns of growth for total employment broken down into three broad groupings: agriculture, industry and other sectors.[49] This graph makes clear that China has been and remains a rural, agrarian society. In 1952, 173 million (84 percent) of China's 207 million total workers were engaged in agriculture, 12 million (six percent) in industry, and 22 million (10 percent) in other sectors. Agricultural employment still predominated in 1983. Out of a total 1983 employment of 460 million persons, 325 million (71 percent) were in agriculture, 60 million (13 percent) were in industry, and 75 million (16 percent) worked in other sectors.

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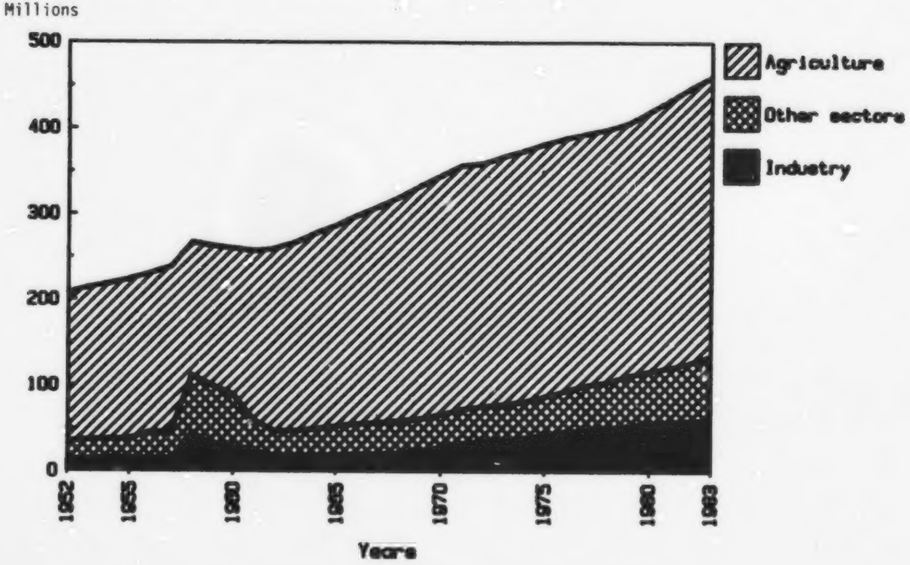
[47] These figures first appeared in Xue Muqiao et al., eds., *Zhongguo jingji nianjian, 1981* [Economic Yearbook of China, 1981] (Beijing: Jingji guanli zazhi she, 1981), pp. VI–7 and VI–8.

[48] See Guogjia tongji ju [State Statistical Bureau], *Zhongguo tongji nianjian, 1981* [Statistical Yearbook of China, 1981] (Beijing: Zhongguo tongji chubanshe, 1982), p. 106. Most empirical studies by western scholars predating this report present only estimates of total employment by industry rather than official statistics. Readers should be particularly careful in comparing the statistics cited here with estimated figures from earlier publications.

[49] Other includes construction and resources prospecting, transport, posts and telecommunications, commerce, catering, service trade and material supply, scientific research, culture, education, public health and social welfare, and government agencies and people's organizations.

FIGURE 1. EMPLOYMENT BY BROAD SECTORS, PEOPLE'S REPUBLIC OF CHINA, 1952-1983
(Millions of Persons)



Source: Guojia tongji ju [State Statistical Bureau], *Zhongguo tongji nianjian, 1984* [Statistical Yearbook of China, 1984] (Beijing: Zhongguo tongji chubanshe, 1984), pp. 107, 109.

The continued dominance of agriculture in employment testifies to the enormous difficulty of modernizing China. Agriculture's share of total workers has nonetheless slowly declined, largely because of faster growth in industrial employment. Employment in industry grew at an annual average rate of 5.2 percent from 1952 to 1983, compared to a 2.6 percent rate of growth in agricultural employment.

A decline in the predominance of agriculture is a common feature of economic development, though it was hastened in China by the adoption of a Stalinist command-planning system in the 1950's. Underlying assumptions of the Stalinist model are that industrial growth is the handmaiden of rapid economic development overall, and that industry should accordingly take precedence in the allocation of production and investment funds. Industry thus received 43 percent of all capital construction funds during China's first five year plan (1953–1957), compared to only a seven percent share for agriculture.[50] Though this affected the proportions of total employment in agriculture and industry in later years, it scarcely changed their employment shares over this period. This suggests that much of industry's growing manpower requirements during the first five year plan were met by reducing the ranks of the urban unemployed, and that any transfer of agricultural labor to industry was counteracted by increasing labor participation ratios in the countryside.

The volatility in employment levels from 1958 to 1962 shown in Figure 1 is due to havoc wrought by the Great Leap Forward. Agricultural employment fell by 38 million persons in 1958 as millions or rural laborers were persuaded to work in state-owned industry and participate in construction and mineral resources prospecting. This transfer of workers explains much of the phenomenal growth in industrial and other employment in 1958. Industrial employment fell by 15 million persons in 1959, followed by the return of many employees from construction and other sectors to agriculture in 1960. By 1963 the proportion of total workers in agriculture had returned to 83 percent, the same as in the early years of China's first five year plan.

Two distinct periods can be identified in Figure 1 since 1963. The first spans the years of the Cultural Revolution (1966–1976), during which agriculture's employment share slowly fell (from 82 percent in 1966 to 76 percent in 1976), industry's employment share almost doubled (rising smoothly from 7 percent in 1966 to 12 percent in 1976), and the employment share for residual economic sectors first declined then returned to its original level. Social disruptions were greatest from 1968–1969, resulting in slow employment growth in industry and a brief dip in other nonagricultural employment. The second period began in 1976 with the death of Mao Zedong and the ouster of the "Gang of Four." Agriculture employment continued its steady decline as a percent of total employment, though at a faster rate than during the Cultural Revolution. The fastest rate of employment growth was not in industry, but in the other nonagricultural sectors (commerce, construction, transport, posts and telecommunications, and nonmaterial services). Employment in these other categories now stands at 16 percent of the total, indicating an importance to the economy that is beginning to be acknowledged in Chinese economic circles. The reasons for this sudden growth in other employment are covered in the following section.

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[50] Guojia tongji ju [State Statistical Bureau], *Zhongguo tongji nianjian, 1983* [Statistical Yearbook of China, 1983] (Beijing: Zhongguo tongji chubanshe, 1983), p. 324.

2. Employment by Detailed Sectors, 1965–1983

The most detailed employment figures regularly reported by the Chinese break workers down into five branches of material production, and three additional service sectors classified in Chinese national income accounting as "nonproductive." Employment data at this level of disaggregation have been published for only 1965, 1978, and 1981–1983, and are presented in Table 5.

TABLE 5. EMPLOYMENT BY BRANCH OF ECONOMIC ACTIVITY
PEOPLE'S REPUBLIC OF CHINA, 1965-1983

	Number Employed (Millions)							Annual Average Rates of Growth (Percent)	
	1965	1978	1979	1980	1981	1982	1983	1965-1978	1978-1983
Total	266.70	398.56	405.81	418.96	432.80	447.06	460.04	2.6	2.9
Material production branches	271.58	375.14	347.65	358.11	407.96	419.53	429.32	2.5	2.7
Industry	18.28	50.09	53.40	56.00	57.96	59.30	60.23	8.1	3.8
Construction and resources prospecting	5.80	10.65	n.a.	n.a.	12.74	13.40	14.81	4.8	6.8
Agriculture, forestry, water conservancy and meteorology	233.98	294.26	294.25	302.11	311.71	320.13	325.10	1.8	2.0
Transport, posts and telecommunications	4.91	7.48	n.a.	n.a.	8.33	8.50	9.06	3.3	3.9
Commerce, catering, service trade and material supply	8.61	12.66	n.a.	n.a.	17.22	18.20	20.12	3.0	,9.7
Nonproductive branches	15.12	23.42	n.a.	n.a.	24.84	27.53	30.72	3.4	5.6
Scientific research, culture, education, public health and social welfare	8.05	15.31	n.a.	n.a.	16.45	16.46	17.00	5.1	2.1
Government agencies and people's organizations	5.03	5.06	n.a.	n.a.	5.55	6.11	6.46	0.0	5.0
Others	2.04	3.05	n.a.	n.a.	2.84	4.96	7.26	3.1	18.9

Note: Employment total for 1982 differs from that shown in Table 1 because of differences in coverage. Employment figures in Table 1 are for persons age 15 and over (census coverage), but regular employment figures here are for males 16-60 years of age and females 16-55 years of age.

Sources: State Statistical Bureau. China: Statistics in Brief, 1984 (Beijing: New World Press, 1984), p. 6.
Guojia tongji ju [State Statistical Bureau], Zhongguo tongji nianjian, 1981 [Statistical Yearbook of China, 1981] (Beijing: Zhongguo tongji chubanshe, 1982), p. 106.
____________, Zhongguo tongji nianjian, 1983 [Statistical Yearbook of China, 1983] (Beijing: Zhongguo tongji chubanshe, 1983), p. 122.

It was noted earlier that nonagricultural employment in sectors other than industry had risen faster than all others from 1978 to 1983. This was due to particularly rapid growth in the number of workers in construction and commerce. Employment in commerce grew at a 9.7 percent annual average rate from 1978 to 1983, compared to a 2.9 percent growth rate for employment overall. Two reasons can be suggested for this rapid increase. First, the post-1978 Central Committee and State Council decisions on broadening avenues of employment prompted the establishment of many new retail shops, catering facilities and service trade organizations under both collective and self-management. From 1978 to 1983, the number of commercial employees in urban collective enterprises doubled (rising from two to four million persons), and the number of self-employed commercial workers in cities and towns rose from 90 thousand to two million at an extraordinary 86 percent annual average rate of growth. Second, rural commercial employment was boosted considerably by the promulgation of Central Committee regulations on expanding private sideline activities and promoting rural trade fairs,[51] prompting employment in rural collective and individual commerce to rise at an annual average rate of 22 percent from 1978 to 1983. These developments have altered the structure of Chinese commerce. In 1978, state-owned enterprises accounted for 77 percent of all commercial employment.[52] Their share fell to 60 percent by 1983, and can be expected to drop even further as commerical employment under different ownership systems grows.

Employment in construction has also risen substantially. Most of the 39 percent increase in construction employment from 1978 to 1983 is attributable to a more than doubling in the number of rural construction workers in the past five years. Employment for this group grew at an annual average rate of 16 percent from 1978 to 1983, compared to a seven percent annual average increase in the number of construction workers overall. Surprisingly, this transformation has received little publicity. What has apparently happened is that Chinese peasants have invested heavily in new housing as they have reaped the financial benefits of the production responsibility system.[53] The number of new houses built per 1,000 peasant households almost tripled from 1978 to 1983 because of this investment, creating a great need for construction workers in its wake.[54]

Commerce and construction are the real success stories in terms of employment growth in recent years, but not all the figures in Table 5 are easily explained. Why, for example, has employment in science and related fields grown at only a two percent annual average rate from 1978 to 1983, when it rose five percent per annum on average from 1965 to 1978? Detailed statistics on this branch show personnel dropoffs of 160 thousand in urban collectives and 740 thousand in rural areas from 1978 to 1983, despite employment growth in state-owned enterprises.[55] Mass retirement of China's aging scientific and technical personnel could be an explanation for this, as could the furloughing of rural and urban collective personnel in education, public health and social welfare no longer deemed essential. Teachers have probably absorbed the majority of these personnel reductions. With rural primary school attendance down because of declining numbers of school age children, and because the production responsibility system has established a financial incentive for parents to have their children at work rather than in school, demand for teachers is on the decline.[56]

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[51] Two major regulations were issued by the Central Committee in 1979 and are entitled "Zhonggong zhongyang guanyu jiakuai nongye fazhan ruogan wenti de jueding" [Decisions of the Central Committee of the Chinese Communist Party on Some Questions Concerning the Acceleration of Agricultural Development], and "Nongcun renmin gongshe gongzuo tiaoli (shixing caoan)" [Regulations on the Work of Rural People's Communes (draft regulations)].

[52] Guojia tongji ju, *Guanghui*. . ., 1984, pp. 152–153.

[53] Peasant per-capita income rose from 134 yuan in 1978 to 310 yuan in 1983. See Guojia tongji ju, *Guanghui* . . ., 1984, p. 169.

[54] Ibid.

Employment trends in government agencies and people's organizations are also puzzling. Table 5 shows no employment growth for this sector from 1965 to 1978, yet a five percent annual average increase from 1978 to 1983. Post-1978 employment growth for government and party personnel was not universal. Detailed statistics show that the number of government and party workers in rural areas actually fell by 200 thousand from 1978 to 1983. The dismantling of the commune administrative system may have had something to do with this, as could attempts to enliven the bureacracy through the forced retirement of older managers.

A final puzzle involves volatility in post-1978 "other" employment, which includes workers in municipal services, finance and insurance. Total employment for this sector fell from 3.1 million in 1978 to 2.8 million in 1981, after which its employment growth has been exponential. The drop in 1981 is due entirely to a spectacular drop in the number of "other" workers in rural areas, who numbered 1.25 million in 1978 and plummeted to 300 thousand in 1981. The rebound since 1981 is also due in large part to rapid employment growth in rural areas. Recent Chinese economic literature provides no explanation for this unusual pattern of growth.

One is on somewhat firmer ground discussing changes in the composition of employment within industry itself. Light and heavy industrial output and investment shares have been a subject of lively policy debate in Chinese economic circles over the past five years. Most economists in China now decry the earlier emphasis on developing heavy industry at the expense of light industry and agriculture. One of the most convincing arguments set forth for a reemphasis on light industrial development has been based on the simple observation that a million yuan invested in heavy industrial plant and equipment provides employment for only 94 persons, compared to the 257 jobs generated by investing these funds in light industrial facilities.[57] As shown in Table 6, this argument has had an effect on the allocation of investment funds and composition of employment between heavy and light industry since 1978. The share of total industrial staff and workers working in light industry was quite high in the 1950's, fell during the Great Leap Forward and the Cultural Revolution, and has steadily increased since 1978 to the 41 percent share it now holds. Changes in light industry's investment share generally precede changes in the composition of industrial employment by a year. Since investment in light industrial capital construction fell sharply in 1983 in both value and percentage terms, there exists the possibility of a downward shift in the proportion of light industrial workers in the very near future.

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[55] Detailed employment data by ownership system and industry cited above may be derived for 1965, 1978 and 1981-1983. At least five official statistical publications are required to pull the data together in this degree of detail, however. Employment by industry and ownership system matrices for these years will gladly be provided upon request.

[56] See FBIS, November 17, 1982, p. K-9, and Liao Tianping and Wen Yingqian, *Liangzhong shengchan lilun he woquo de renkou wenti* [The Theory of Two Kinds of Production and China's Population Problem] (Guangzhou: Guangdong renmin chubanshe, 1982), p. 133.

[57] Feng Lanrui, "Dui yingxiang wo guo laodong jiuye yinsu de yanjiu" [Research on Factors Influencing Employment in China], in Zhongguo shehui kexue yuan . . ., 1983, p. 8.

TABLE 6. DISTRIBUTION OF WORKERS AND STAFF AND CAPITAL CONSTRUCTION INVESTMENT WITHIN INDUSTRY, PEOPLE'S REPUBLIC OF CHINA, 1952-1983

	Distribution of Staff and Workers in Industry (Percent)		Distribution of Investment in Industrial Capital Construction (State-Owned Enterprises, Percent)	
Year	Heavy Industry	Light Industry	Heavy Industry	Light Industry
1952	29.9	70.1	76.0	24.0
1957	39.8	60.2	84.8	15.2
1958-1960	80.4	19.6	—	—
1965	52.6	47.4	92.1	7.9
1970	59.1	40.9	—	—
1975	61.5	38.5	90.0	10.0
1976	61.0	39.0	—	—
1978	63.5	36.5	89.3	10.7
1979	—	—	88.1	11.9
1980	60.9	39.1	82.0	18.6
1981	59.1	40.9	79.9	20.1
1982	58.7	41.3	82.2	17.8
1983	58.9	41.1	86.3	13.7

Sources: Guojia tongji ju [State Statistical Bureau], Zhongguo tongji nianjian, 1981 [Statistical Yearbook of China, 1981] (Beijing: Zhongguo tongji chubanshe, 1982), p. 108.

________________, Zhongguo tongji nianjian, 1984 [Statistical Yearbook of China, 1984] (Beijing: Zhongguo tongji chubanshe, 1984), pp. 115,120 and 308.

Xue Muqiao, et. al., eds., Zhongguo jingji nianjian, 1981 [Economic Yearbook of China, 1981] (Hong Kong: Xianggang xiandai wenhua qiye gongsi, 1981), p. VI-20.

Feng Lanrui, "Dui yingxiang woguo laodong jiuye yinsu de yanjiu" [Study of Factors Influencing Employment in China], in Zhongguo shehui kexue yuan qingshao nian yanjiusuo, qingnian laodong yanjiu shi [Youth Labor Research Office, Institute of Youth Research, Chinese Academy of Social Sciences], ed., Qingnian jiuye de tansuo yu shijian [An Inquiry into Employment of Youth and its Practice] (Beijing: Zhongguo shehui kexue chubanshe, 1983), pp. 7-8.

IV. UNEMPLOYMENT AND UNDEREMPLOYMENT IN CHINA

Unemployment and underemployment are not new to China, though Chinese statistical authorities have never measured either concept in a comprehensive manner. The only unemployment data that have been published to date pertain just to urban areas, and are available for only random years prior to 1978. With the publication of preliminary 1982 population census results, however, unemployment can be estimated on a comprehensive basis for the first time in the history of China. Recent statements on surplus labor in rural areas have also revealed new information on underemployment in China.

It is known that at least four million persons were out of work in urban areas when the People's Republic of China was founded in 1949.[58] Half of these persons reportedly had jobs by 1952,[59] but unemployment was still a pressing problem according to party officials.[60] Just over one million persons were listed as waiting for jobs in cities and towns in 1956, indicating substantial improvement.[61] By 1957 it was claimed that all persons who had been without jobs in 1949 were gainfully employed.[62] Unemployment reappeared in urban areas in the period of readjustment following the Great Leap Forward. Approximately two million persons were without jobs each year from 1962–1965, most of whom were new entrants to the urban labor force or peasants who had just been recruited by urban enterprises and then were laid-off.[63] To relieve unemployment, authorities in Shanghai and some cities in Zhejiang province sent 130,000 unemployed young people to remote border regions to participate in army construction projects.[64] Unemployment again became an issue in 1979 when thousands of urban youths who had been sent to the countryside during the Cultural Revolution returned to the cities and towns demanding jobs.

What is missing from the foregoing overview is a description of unemployment levels for the country as a whole rather than for just its urban areas. There is moreover no way of knowing if the above figures are understated, as has sometimes been the case with Chinese statistics from earlier periods. More comprehensive unemployment figures, which are estimated from China's preliminary 1982 census results, are the subject of the following section.

A. UNEMPLOYMENT AT MIDYEAR 1982

The labor force estimate presented in Table 1 of this report contains unemployment levels by sex and province for midyear 1982.

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[58] An urban unemployment rate of 21 percent can be derived for 1949 by dividing the four million unemployed figure by an estimated labor force of 19.33 million persons. The labor force estimate includes 15.33 million persons who were employed (8.09 staff workers and 7.24 million individual urban laborers) and four million who were unemployed. All data are from Guojia tongji ju, Guanghui . . ., 1984, pp. 148 and 152.

[59] Zeng Qixian, 1981, p. 110.

[60] John Philip Emerson, "Employment in Mainland China: Problems and Prospects," in U.S. Congress Joint Economic Committee, *An Economic Profile of Mainland China* (Washington, D.C.: U.S. Government Printing Office, 1967), p. 418.

[61] Ibid. A 1956 urban unemployment rate of three percent can be estimated as in footnote 56.

[62] Feng Lanrui and Zhao Lukuan, 1982 p. 3.

[63] Feng Lanrui, Zhou Beilong and Su Chongde, "Lun laodong jiuye he jingji zengzhang de guanxi" [The Relationship between Employment and Economic Growth], *Jingji lilun yu jingji guanli* [Economic Theory and Management], No. 1, February 25, 1983, p. 49.

[64] Feng Lanrui and Zhao Lukuan, 1982, p. 5.

Unemployment was estimated as the sum of three classes of nonworkers: persons awaiting unified state job assignment, persons awaiting work in cities and towns, and nonworkers with status left unspecified. No attempt was made in the census to identify which categories of nonworkers were economically active (e.g. unemployed but looking for work), but the above definition follows that given in recent Chinese statistical handbooks, except that the handbooks generally leave out nonworkers of unspecified status.[65]

An estimated 25.6 million persons were out of work in China at midyear 1982 according to Table 1, 12.3 million of whom were men and 13.3 million were women. Unemployment rates calculated from these data in Table 7 show that 4.7 percent of China's total labor force was unemployed at this time. One conclusion that can be drawn from Table 7 is that unemployment rates were greater for women than for men not just nationally (5.5 percent for women compared to 4.0 percent for men), but in every region and province as well. This reflects prejudice against hiring women that has long been evident in China, and is closely tied to low female literacy rates. Rural families in China often see little personal benefit in investing in education for their daughters, for unlike sons, they leave the household upon marriage and are not obligated to support their parents in old age. Average educational levels are thus significantly lower for women than men, and since employers value literacy, they prefer male employees. Preliminary 1982 census results show that almost half of all women age 15 and over are illiterate or semiliterate compared to a figure of 21 percent for men, and that a higher proportion of men than women has attained each level of education.[66]

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[65] See footnote 4 for the argument under lying the inclusion of nonworkers of unspecified status among those considered involuntarily unemployed.

[66] Guowuyuan renkou pucha bangong shi . . .. 1983, pp. 312-317.

TABLE 7. ESTIMATED UNEMPLOYMENT RATES BY REGION AND PROVINCE PEOPLE'S REPUBLIC OF CHINA, MIDYEAR 1982
(Percent)

Region and Province	Both Sexes	Men	Women
Total	4.7	4.0	5.5
East	4.2	3.6	5.1
Shanghai	2.9	2.6	3.3
Jiangsu	3.6	2.9	4.4
Zhejiang	4.6	3.8	5.7
Anhui	3.3	2.6	4.2
Fujian	6.4	5.2	8.3
Jiangxi	4.8	3.9	5.9
Shandong	4.6	4.2	5.1
North	5.3	4.6	6.3
Beijing	4.5	4.2	5.0
Tianjin	5.3	4.2	6.7
Hebei	5.2	4.3	6.5
Shanxi	4.4	4.0	5.0
Neimenggu	7.3	6.6	8.5
Northeast	8.9	8.0	10.5
Liaoning	8.2	7.5	9.4
Jilin	9.5	8.5	11.3
Heilongjiang	9.3	8.1	11.5
Northwest	4.2	3.7	4.9
Shaanxi	4.5	4.2	5.0
Gansu	4.1	3.3	5.0
Qinghai	5.3	4.4	6.3
Ningxia	4.7	4.1	5.5
Xinjiang	3.0	2.5	3.7
South	3.9	3.3	4.7
Henan	3.7	2.9	4.5
Hubei	3.6	3.0	4.2
Hunan	4.6	3.7	5.8
Guangdong	4.8	3.9	5.8
Guangxi	2.4	2.3	2.6
Southwest	4.5	3.7	5.4
Sichuan	4.7	3.7	5.9
Guizhou	4.5	4.0	5.0
Yunnan	3.6	3.4	3.9
Xizang	.	.	.

Source: Calculated from Table 1.

Table 7 also shows that unemployment rates vary greatly among regions and provinces. Overall unemployment rates range from a high of 8.9 percent in the Northeast, to a low of 3.9 percent in the South. Regional variations of this sort are the norm for large countries, and arise from differences in the kinds of economic activity prevalent in different parts of the country.[67] Unemployment rates are low in South China because agricultural production is the chief economic activity and is highly labor-intensive, and because the practice of double and even triple-cropping keeps the demand for labor high. Unemployment rates are high in Northeast China because of the concentration of heavy industrial facilities, some of which are capital-intensive rather than labor intensive.[68]

China's estimated 1982 unemployment rates are compared with unemployment rates for other areas in Table 8. Because of differences in labor force definitions, standards regarding duration of unemployment, and urban/rural population composition, these figures are comparable only in a broad sense. Some interesting conclusions can nonetheless be drawn from this table. China's overall unemployment rate is lower than that for about half of the areas shown. The unemployment picture in China compares very favorably for both sexes with the situation in North America and Europe. The record is mixed when China's unemployment rates are compared with those in neighboring East and Southeast Asian economies. All but three of these economies had lower overall unemployment rates than China, though the magnitude of difference between these rates is often small. It would be misleading to claim that the unemployment situation is better in China than in some western developed economies, and worse than in some Asian areas. This presumes an understanding of not only how many persons are out of work in each country on a standardized basis but of the differences between country in how unemployed persons are provided for while seeking jobs, and of cultural differences regarding the importance of full employment. One could as a first step compare only urban unemployment rates, which would eliminate the need to address the considerable differences between areas in defining and measuring rural unemployment. Addressing these factors is beyond the scope of this paper, though comparisons made in Table 8 do provide a general idea of how unemployment in China compares with unemployment in other economies.

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[67] For example, 1982 unemployment rates in the United States ranged from a low of 5.5 percent in South Dakota to a high of 15.1 percent in Michigan. See Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1984* (Washington, D.C.: U.S. Government Printing Office, 1983), p. 424.

[68] This is true for petroleum extraction and refining, which is centered in the Northeast, but not necessarily true for all heavy industry. It is also possible that higher unemployment rates are shown for the Northeast because prisoners, a group that could not be separated from one of the three classes of nonworkers summed to estimate unemployment, are often incarcerated in the Northeast. For details on these points see Taylor, 1985, Chapter VI.

TABLE 8. UNEMPLOYMENT RATES FOR THE PEOPLE'S REPUBLIC OF CHINA AND SOME OTHER AREAS
(PERCENT)

Area	Both Sexes	Men	Women
China (1982, excluding Xizang)	4.7	4.0	5.5
North America			
United States (1982)	9.7	9.9	9.4
Canada (1982)	11.0	11.1	10.8
Europe			
France (1981)	7.6	5.4	11.1
Germany (1982)	5.8	5.2	6.9
Great Britain (1982)	12.3	13.3	10.8
Italy (1982)	4.8	3.4	7.6
Netherlands (1981)	8.9	6.3	11.0
East Asia			
Hong Kong (1982)	3.8	4.2	3.2
Japan (1982)	2.4	1.9	4.0
Korea, Republic of (1982)	4.4	5.5	2.5
Philippines (1982)	5.1	-	-
Taiwan (1982)	2.0	1.9	2.1
South and Southeast Asia			
Bangladesh (1979)	1.4	1.5	0.5
Burma (1981/1982)	4.6	-	-
Indonesia (1980)	1.6	1.3	2.2
Malaysia, Peninsular (1979)	5.7	4.8	7.4
Pakistan (1981)	3.1	2.9	7.5
Singapore (1982)	2.6	2.4	2.9
Sri Lanka (1980/1981)	13.6	11.1	20.1
Thailand (1981)	1.2	1.4	1.0
Oceania			
Australia (1982)	7.1	6.3	8.5
New Zealand (1981)	4.5	3.9	5.7
Papua New Guinea (1980)	2.8	3.8	1.7

Note: Age groups included in the unemployment calculations above are persons 10 years and over for Bangladesh, Pakistan, and Papua New Guinea, 14 and over for Korea and Italy, 15 and over for China, Australia, Canada, Hong Kong, Germany, Indonesia, Japan, Peninsular Malaysia, Netherlands, New Zealand, Philippines, Singapore, Taiwan, and Thailand, and 16 and over for the United States, France, and Great Britain. Age groups included in the labor force data for Sri Lanka and Burma are unknown. Data are from the latest available censuses, labor force surveys, household surveys and official country estimates. Detailed sources are available upon request.

B. URBAN UNEMPLOYMENT, 1977–1983

As noted earlier, the post-1978 return of rusticated youth to China's cities occurred at a time when middle-school graduates were looking for jobs in unprecedented numbers. Finding jobs for these individuals has been an extremely difficult task for urban authorities, and has been the driving force behind the decision to expand employment in the collective and private individual sectors. Full employment remains as elusive a goal in China as elsewhere, but considerable success has been achieved in finding jobs for urban youths in recent years.

Employment creation in urban areas for China as a whole from 1978–1983 is summarized in Table 9. The magnitude of China's employment problem in the late 1970's is clearly evident from these figures. Led by the return of rusticated youths from the countryside, the total number of urban job seekers rose from 10.8 million in 1978 to over 15 million in 1979. Urban authorities found more than twice as many jobs for these persons in 1979 as in 1978, but over six million persons were still without work at the end of 1979. Urban unemployment in 1979 may have exceeded even this high figure, because the figures shown in Table 9 include only those persons registered for work with the municipal labor bureaus. The number of urban job applicants has declined every year since 1979, as have the number without work at yearend. Only 2.7 million persons were reported unemployed in cities and towns at the end of 1983, indicating that the blacklog of persons without work from earlier years had been virtually eliminated. Statistical authorities have reported a 1983 urban unemployment rate of 2.3 percent, compared to rates of 5.5 percent and 2.7 percent cited for 1979 and 1981, respectively.[69]

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[69] The 1983 overall urban unemployment rate was cited by Zhao Shouyi (Minister of Labor Affairs) in "Yongyu gaige shanyu gaige" [Be Bold and Skilled in Reforms], *Zhongguo laodong* [Labor in China], No. [illegible] September 28, 1984, p. 3. The unemployment rates for 1979 and 1981 are cited in Beijing jingji xueyuan, laodong jingji xi [Beijing College of Economics, Department of Labor Economics], *Laodong jingjixue* [Labor Economics] (Hunjiang: Jilin renmin chubanshe, 1983), p. 119. As noted by Emerson, 1983, pp. 2–6, care must be taken in interpreting unemployment rates cited in Chinese publications because of differences in ways in which they are calculated. The unemployment rates cited above appear to have been calculated as the ratio of persons waiting for work to the sum of staff and workers, individual urban laborers, and persons waiting for work in urban areas.

TABLE 9. URBAN JOB SEEKERS, FINDERS AND UNEMPLOYED, PEOPLE'S REPUBLIC OF CHINA, 1978-1983
(Millions of Persons)

Employment Status	1978	1979	1980	1981	1982	1983
Number Seeking Jobs (yearend)	10.75	15.39	13.09	11.25	9.69	8.99
Number Finding Jobs (yearend)	5.44	9.03	9.00	8.20	6.65	6.28
Where from:						
Persons waiting for work in cities and towns and educated urban youths working in rural areas	2.75	6.89	6.23	5.34	4.08	4.07
Persons from rural areas	1.48	0.71	1.27	0.92	0.66	0.68
Graduates from universities, colleges and secondary technical schools	0.38	0.33	0.80	1.08	1.17	0.93
Others	0.83	1.10	0.70	0.86	0.74	0.60
Assignments:						
State-owned units	3.92	5.68	5.72	5.21	4.09	3.74
Collective-owned units in cities and towns	1.52	3.18	2.78	2.67	2.22	1.71
Self-employed	0.00	0.17	0.50	0.32	0.33	0.84
Number Unemployed (yearend)	5.31	6.36	4.09	3.05	3.04	2.71

Note: The first line of this table, "Number Seeking Jobs," is not formally calculated as a statistic in China, though the number finding jobs and the number of persons unemployed at yearend are. The "Number Seeking Jobs" is calculated here as the sum of the number finding jobs and persons unemployed at yearend.

Sources: Guojia tongji ju [State Statistical Bureau], Zhongguo tongji nianjian, 1984 [Statistical Yearbook of China, 1984] (Beijing: Zhongguo tongji chubanshe, 1984), p. 130.
Ren Tao and Yue Bing, "Population and Employment," Beijing Review, No. 13, March 28, 1983, p. 21.
"Economic Take-Off Brings More Jobs," Beijing Review, No. 41, October 8, 1984, p. 13.
Hu Qiaomu, ed., Zhongguo baike nianjian, 1983 [Encyclopedic Yearbook of China, 1983] (Beijing: Zhongguo da baike quanshu chubanshe, 1983), p. 663.
Hu Mengzhou, "Solution to Employment Problems," Beijing Review, No. 39, September 27, 1982, p. 20.

China's urban unemployment situation is much better today than it was five years ago, and urban authorities are justifiably proud of having eased a very difficult social problem. How was this accomplished? First, avenues for employment were broadened by the creation of labor service companies. These companies were originally formed by municipalities in 1978 to serve as low-cost alternatives to labor bureaus for finding jobs for unemployed urban dwellers. They have been particularly effective in organizing young people into groups to provide social and commercial services, and offer vocational training so that the skills of the unemployed are better matched to available employment opportunities.[70] As shown in Table 10, the growth of labor service companies has been remarkable. Only 4,211 such companies existed in 1979; by 1983 the number had grown to 23,988. An interesting shift has taken place in the management of these companies. In 1979 most were organized by state enterprises and other offices, possibly to find employment for children of employees. Since 1982, most of the labor service companies have been operated by local governmental authorities. The number of persons trained and employed by labor service companies has risen from 1.5 million in 1979 to 5.7 million in 1983, showing that labor service companies have become major employment-generating institutions in their own right.

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[70] Feng Lanrui and Zhao Lukuan, 1982, p. 18.

TABLE 10. PROFILE OF LABOR SERVICE COMPANIES, PEOPLE'S REPUBLIC OF CHINA, 1979-1983

	1979	1980	1981	1982	1983
I. Number of labor service companies (actual number).	4,211	4,584	11,583	17,497	23,988
Run by provinces, regions, counties, towns and street committees:	44	779	4,838	9,110	14,448
Run by enterprises, offices and organizations:	4,167	3,805	6,745	8,387	9,540
II. Number of persons working or training in labor service companies (thousands):	1,515.6	2,356.4	3,208.9	4,480.1	5,709.6
In temporary work:	0.0	1,140.0	1,616.1	1,000.0	800.0
In vocational training:	1,100.0	359.3	323.3	735.8	963.3
In collective enterprises run by labor service companies:	415.6	858.1	1,269.5	2,744.3	3,946.3

Source: "Cong shuzi kan chengjiu" [Looking at Achievements Through Statistics], Zhongguo laodong [Labor in China], No. 18, September 28, 1984, p. 29.

The second means used to resolve the urban unemployment dilemma in the late 1970's was to slow the migration of peasants from rural areas to cities and towns. A number of regulations were issued by the Central Committee and State Council to limit the ability of urban enterprises to hire peasants on a temporary basis. An October 1981 joint decision of both bodies on expanding urban employment specifically called for greater control of rural-urban migration to limit urban unemployment.[71] More detailed regulations were released in a December 1981 State Council circular which stipulated that state-owned enterprises in urban areas should recruit all temporary employees from the urban labor force, and that urban collectives were forbidden to hire peasants on either a temporary or permanent basis.[72] These directives were clearly aimed at limiting state enterprise forays into rural areas to recruit workers, thereby helping increase the number of job openings available to urban residents.

A third method used to alleviate urban unemployment was the use of accelerated retirement to create new job openings. Official retirement ages in China are 55 years for women and 60 years for men, but staff and workers in state enterprises who elect to retire early can often guarantee employment of a son or daughter in their unit. This practice, known as the "substitution system" [*dingti zhi*], was extensively used in 1979 and 1980 to provide jobs for rusticated youths with parents in cities and towns.[73] From late 1978 through March 1979, over 100,000 substitutions reportedly took place in Shanghai alone,[74] and 16 percent of the work force in a Tianjin textile mill retired in 1979 to provide immediate jobs for their children.[75] Though effective as a short-term remedy to urban unemployment, the "substitution system" had the predictable effect of promoting cynicism on the value of a good education and training in landing a desirable job.[76] It is now regarded as a decidedly inferior avenue of employment "creation," but may still be used in some areas—albeit with the requirement that one's son or daughter has skills of use to the parent's enterprise.

The final method that may have been used to alleviate urban unemployment from 1979–1981 was to unofficially permit overstaffing in state enterprises. Indirect evidence suggests that "featherbedding" labor practices may have intensified slightly during these years to accommodate the glut of new entrants to the job market. Labor productivity in state-owned industrial enterprises (the ratio of gross value of output to permanent employees) grew more slowly than usual in 1979 and 1980, and actually declined in 1981, which may indicate that workers were being hired past the point of positive contributions to output.[77] A tendency toward promoting employment over promoting efficiency during this period has been noted by more than one Chinese economist, and provided impetus to enterprise reorganization efforts that had been underway as early as 1979.[78] State enterprises that have undergone reorganization have reduced their work forces by five to ten percent on average, lending credence to the argument that overstaffing may have been widespread in earlier years.[79]

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[71] Zhonggong zhongyang, guowuyuan, 1982, p. III-85.

[72] Guowuyuan [State Council, PRC], "Guowuyuan guanyu yange kongzhi nongcun laodongli jin cheng zuogong he nongye renkou zhuan wei fei nongye renkou de tongzhi" ["Circular of the State Council on Strictly Controlling Rural Laborers from Working in Cities and the Change of Agricultural Population into Nonagricultural Population], dated December 30, 1981, *Zhonghua renmin gongheguo guowuyuan gongbao* [People's Republic of China State Council Bulletin], No. 27, February 10, 1982, pp. 885–887.

[73] Zhuang Qidong, "Tantan chengzhen qingnian laodong jiuye de wenti" [A Discussion of Urban Youth Employment Issues], in Zhongguo shehui kexue yuan . . ., 1983, p. 14.

[74] Gold, 1980, p. 763.

[75] Emerson, 1982, p. 252.

[76] Liu Jiannong, "Renzhen yanjiu daiye qingnian wenti" [Earnestly Study the Issue of Youth Unemployment], in Zhongguo shehui kexue yuan . . ., 1983, p. 60.

China's urban unemployment problem is considerably less severe now than it was from 1978 to 1980, but it is still a source of concern for the country. One Chinese author has observed that although urban enterprises already have about a third too many workers, jobs will have to be found for an additional six million new applicants each year throughout the 1980's.[80] Another Chinese study sites the estimate of "relevant agencies" that 50 million job vacancies will be needed in cities and towns from 1981 to 1990, requiring a combined rate of growth in agricultural and industrial output in excess of six percent.[81] Barring any natural disasters or serious political upheavals, jobs are likely to be found for these persons. The labor problems facing urban authorities for the remainder of this decade seem far less difficult than those successfully dealt with in the late 1970's and early 1980's.

C. RURAL UNEMPLOYMENT AND UNDEREMPLOYMENT

As in many other developing countries, China gathers no unemployment statistics for rural areas.[82] Outright unemployment in the countryside is probably minimal, through recent reports indicate that rural underemployment is a serious and growing problem. The figure most commonly cited is that 30–40 percent of the rural work force is in surplus.[83] This implies that 98–137 million persons could be taken from the rural work force and not affect agricultural output levels.[84] These are only estimates, of course, and fairly crude ones at that.[85] They should certainly not be interpreted to mean that those who scratch a living from the soil in China have anything less than a hard life, despite their numbers. It is nonetheless true that virtually all of China's arable land is now under cultivation, yet the rural labor force continues to grow. Given constraints on migration from rural to urban areas, this guarantees that an increasing proportion of the rural work force will be underutilized if farming remains the major economic activity. One Chinese economist has estimated that fixed land and growing labor resources will render nearly 50 percent of the rural work force redundant by 1990.[86] Another Chinese economist has projected that over 60 percent of Henan province's agricultural workers will be in surplus by the year 2000.[87]

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[77] Guojia tongji ju [State Statistical Bureau], *Zhongguo tongji nianjian, 1984* [Statistical Yearbook of China, 1984] (Beijing: Zhongguo tongji chubanshe, 1984), p. 270. In constant 1980 prices, labor productivity (yuan per worker) for state-owned industrial independent accounting units was 11,130 in 1978, 11,838 in 1979, 12,080 in 1979 and 11,863 in 1981. The 1981 decline in labor productivity may also have been due to a change in the composition of industrial output. Heavy industrial output actually fell in 1981, while light industrial output (which is labor-intensive) grew rapidly. This contributed to an overall slowing of industrial output growth, yet an increase in labor use.

[78] See, for example, Liu Qingtang, "Tigno laodong shengchanlu yu kuada jiuye de guanxi" [The Relationship between Promoting Labor Productivity and Expanding Employment], in Zhongguo shehui kexue yuan . . ., 1983, pp. 64–65.

[79] Laodong renshi bu [Ministry of Labor and Personnel], "Jianguo yilai laodong renshi gongzuo de zhongda chengjiu" [Great Achievements in Labor Personnel Work since the Founding of the People's Republic], *Zhonguo laodong* [Labor in China], No. 18, September 28, 1984, p. 8.

[80] Yuan Fang, "Jiji kaizhan quanyu qingnian jiuye wenti de diaocha yanjiu" [Vigorously Develop Surveys and Research on Youth Employment Issues], in Zhongguo shehui kexue yuan . . ., 1983, p. 45.

[81] Zhuang Qidong and Sun Keliang, "Laodong yubei xitong wenti chutan" [Preliminary Investigation of the Labor Preparation System], in Zhongguo shehui kexue yuan . . ., 1983, p. 106.

[82] Rural unemployment is difficult for many developing countries to measure, not only because statistical resources are scarce, but also because of problems in defining unemployment in economies where temporary, seasonal and short-term agricultural workers are common.

[83] The 30–40 percent surplus labor estimate is cited in the following publications: Zhao Lukuan and Yao Yuqun, "Guanyu woguo laodongli ziyuan de jige wenti" [Some Questions Concerning China's Labor Resources], *Jingji wenti tansuo* [Inquiry into Economic Issues], No. 12, December 20, 1983, p. 23; Xiong Yu, "Zhongguo renkou xuehui lishihui kuoda huiyi taolun woguo renkou yu shehui jingji wenti" [The Population, Social and Economic Issues Discussed at the Annual Session of the Council of the Population Association of China], *Renkou yanjiu* [Population Research], No. 2, March 29, 1983, p. 59; Li Muzhen, "Woguo chengshi renkou wenti fenxi" [An Analysis of the Population of Cities in China], *Renkou yu jingji* [Population and Economics], No. 4, August 25, 1984, p. 6; and Zheng Zonghan, "Lun xiao chengzhen" [On Small Towns], *Zhongguo shehui kexue* [Social Sciences in China], No. 4, July 10, 1983, p. 125.

The precise level of underemployment in China is open to debate, but there is no disputing that it is a problem of long-standing concern. The ratio of cultivated land to agricultural workers fell from 9.35 mou/person (0.62 hectares/person) in 1952 to 4.81 mou/person (0.32 hectares/person) in 1980.[88] As early as 1958 there were reports that 10–20 percent of the labor force in certain areas was underutilized.[89] There are also references that the rustication campaign promoted during the Cultural Revolution (1966–1976) worsened an existing problem of surplus rural labor.[90] Rural communes were successful in absorbing new entrants to the agricultural labor force over these years by intensifying fertilization and irrigation, multiple cropping, and shifting towards labor-intensive farm activities,[91] but the fact remains that the ratio of cultivated land per laborer in China is lower than in even Bangladesh, where the presence of underemployment is well-documented.[92]

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[84] If the 30–40 percent surplus labor figures are applied to the 1983 agricultural work force of 325.10 million (see Table 5), an estimated 98–130 million persons are underemployed. If these percentages are applied to the 1983 number of collective and individual laborers in rural areas of 342.58 million (see Table 4), then an estimated 103–107 million persons are underemployed.

[85] These surplus labor estimates appear to be calculated by subtracting an "optimal" rural work force estimate from actual employment levels, where the "optimal" figure is estimated by dividing cultivated acreage by some ideal land/labor ratio, usually states as 6 mou of land per worker (one mou of land is equivalent to 0.0667 hectares). It is not known how this land/labor ratio was selected, but it presumably represents what agricultural planners regard as the maximum acreage that can be efficiently tended by a single laborer on the average. Since the 6 mou per person land/labor ratio embodies unknown assumptions regarding levels of agricultural mechanization and crop mix which affect agricultural labor requirements, one cannot be certain how accurate the published underemployment rates of 30–40 percent are. It is possible that underemployment estimates may be overstated because official statistics on cultivated area are generally regarded as too low (see Timothy King, "Population Growth and Utilization of Labor in China, 1950-2000," paper presented at the Workshop on Population Growth and Labor Absorption in the Developing World: 1960–2000, Bellagio, July 1–6, 1984, pp. 25 and 28). Moreover, even when a single ideal ratio of cultivated land per worker is assumed for all regions, estimated underemployment can be quite different from place to place. For example, it was estimated that 8.4 percent of Henan province's 1979 agricultural labor force was in surplus based on a land/labor ratio of 5 mou/person (Fan Chunyong, 1982, p. 52). However using exactiy the same land/labor ratio on data from twelve counties in Zhejiang province, another Chinese scholar estimated that surplus laborers comprised more than 61 percent of the rural labor force (Xu Tian, "Jiji kaizhan chengshi renkou wenti de yanjiu" [Actively Carry Out Research on Urban Population Problems], *Renkou yanjiu* [Population Research], No. 3, May 29, 1984, p. 62.).

[86] Zheng Zonghan, 1983, p. 125.

[87] Fan Chunyong, "Henan sheng weilai nongye renkou de zhuanhua ji chengzhen renkou de fazhan qushi" [The Future Transformation of the Agricultural Population and the Growth of the Urban Population in Henan Province], *Renkou yu jingji* [Population and Economics], No. 5, October 25, 1982, p. 52.

[88] Sun Xin, "Shixi woguo nongcun shengyu laodongli de xingcheng yuanyin ji jiejue tujing" [Causes and Resolution of the Preliminary Division of China's Rural Surplus Labor Force], *Lanzhou daxue xuebao* [Journal of Lanzhou University], No. 1, January 28, 1984, p. 107.

[89] Emerson, 1967, p. 420.

[90] Sun Xin, 1984, p. 107

The introduction of the production responsibility system in the countryside in 1979 graphically demonstrated the extent of rural underemployment. Peasants were allowed to specialize in the production of certain crops, and given free rein on how they met production quotas for agricultural products. Yields rose impressively in response, yet work days in agriculture declined as practices such as triple-cropping were discarded and peasants saw personal benefit in working more productively. For example, it was reported in Guangxi province that grain production had increased with just over half the previous number of laborers engaged in its cultivation.[93] Similar dramatic changes have been observed in Guangdong province.[94] Economists in China generally regard the production responsibility system to have actually increased rural underemployment,[95] though most western economists would argue that it has simply taken existing problems with surplus labor that were previously hidden and made them more evident.

Given stringent regulations restricting the ability of urban enterprises to hire peasants, rural authorities have had to rely on measures other than rural-urban migration to ease their problems with surplus workers. One set of measures is aimed at reducing future underemployment by reducing rural population growth. The ambitious rural family planning goals and incentive systems aimed at achieving this end are discussed and evaluated elsewhere in this volume.[96] Second, there has been a concerted effort to expand rural employment in non-farm activities, thereby sidestepping the constraint fixed land resources place on labor use. There has been some success in achieving this goal. Employment statistics for collective and individual laborers in rural areas show that agricultural employment grew at an annual average rate of only 2.1 percent from 1981 to 1983, but nonagricultural employment grew at a 7.6 percent rate, with particularly rapid employment growth in construction, transport and commercial services.[97] An extension of this policy is to reduce rural underemployment by promoting the growth of small towns in rural areas.[98] The rationale behind this policy is that developing small towns permits a large number of peasants to switch to nonagricultural vocations without their migrating to large and medium-sized cities, thereby keeping competition for scarce jobs in large cities to a minimum. It is an understatement to say that the promotion of small towns is being pursued aggressively. From January 1984 (when the Central Committee released its small-town development circular) through July 1984, more than 2,900 new small towns were incorporated for a national total of more than 5,698 towns, and the number of towns is expected to grow to 10,000 by yearend 1984.[99] These towns will play a key role in future rural manpower developments.

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[91] For a concise overview of these labor absorption measures, see Thomas G. Rawski, *Economic Growth and Employment in China* (New York: Oxford University Press, 1979), pp. 91-109.

[92] King, 1984, p. 27.

[93] Zhang Kewu, "Wei nongcun duoyu laodongli guangkai menlu" [Broaden Opportunities for Rural Excess Labor], *Renkou yanjiu* [Population Research], No 4, July 29, 1984, p. 26.

[94] Graham Johnson, "Letter from Wantong," *Far Eastern Economic Review*, November 3, 1983, p. 102.

[95] See, for example: Zhou Yuan, "Nongcun laodongli 'jinyuan' qilaile" [The Rise of a 'Precious-as-Gold' Rural Labor Force], *Liaowang* [Outlook], No. 1, January 2, 1984, p. 22; Xiong Yu, 1983, p. 59; and Xu Tianxi, 1984, p. 62.

[96] See the article by John Aird in this volume, "Coercion in Family Planning: Causes, Methods and Consequences."

[97] Calculated from data in Guojia tongji ju [State Statistical Bureau], *Zhongguo tongji nianjian, 1984*, 1984, pp. 108, 110 and 122, and State Statistical Bureau, *China: Statistics in Brief, 1984* (Beijing: New World Press, 1984), p. 6.

[98] Key features of this policy are articulated in Zhonggong zhongyang [Central Committee of the Chinese Communist Party], "Zhonggong zhongyang guanyu yijiubasi nian nongcun gongzuo de tongzhi" [Circular of the Central Committee on 1984 Rural Work], issued January 1, 1984, *Renmin ribao* [People's Daily], June 12, 1984, pp. 1-2. Additional discussion of the policy appear in Zheng Zonghan, 1983, pp. 119-136, and in International Labor Organization, "China's Long March Towards Full Employment," Press Release, October 2, 1984, p. 3.

The magnitude of rural underemployment in China and the reluctance of Chinese authorities to permit migration from rural areas to large and medium-sized cities dictate that the problem of surplus rural labor will not disappear overnight. One Chinese journal article estimates that the rural labor force will reach 450 million persons by the year 2000, of which agriculture will absorb 30 percent, forestry, animal husbandry and fishery 20 percent, and ten percent will succeed in finding employment in cities and mining areas.[100] This leaves 40 percent, or 180 million persons, to be either employed in nonagricultural activities outside major urban centers or be underutilized except during peak planting and harvest periods. When one considers that only eight percent of all rural laborers were engaged in nonagricultural activities in 1983,[101] and that nonagricultural employment in rural areas would have to grow at an annual average rate of more than 128 percent to provide work for 180 million persons by the year 2000, the problems involved in solving underemployment in China are starkly evident. Recent policy measures that broaden the avenues for self-employment and employment in small collectives rather than in large state-owned enterprises may help absorb some of those no longer needed for agricultural production, but surplus labor is still likely to characterize the Chinese rural economy for some time to come.

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[99] Xinhua she [New China News Agency], "Quanguo yi you jianzhi zhen wu qian liu bai duo ge" [More than 5,600 Towns are Incorporated in China], *Guangming Ribao* [Bright Daily], August 29, 1984, p. 1, and "Quanguo yi you jianzhi zhen wu qian liu bai duo" [More than 5,600 Towns are Incorporated in China], *Renmin ribao* [People's Daily], December 5, 1984, p. 1.

[100] Ben kan pinglun yuan [Commentator], "Nuli kaichuang xiangzhen qiye de xin jumian" [Strive to Initiate a New Breakthrough in Rural and Urban Enterprises], *Nongcun gongzuo tongxun* [Rural Work Bulletin], No. 4, 1984, p. 15.

[101] Guojia tongji ju [State Statistical Bureau], *Zhongguo tongji zhaiyao, 1984*, [Statistical Abstract of China, 1984] (Beijing: Zhongguo tongji chubanshe, 1984), p. 23.

MATERIAL POVERTY IN THE PEOPLE'S REPUBLIC OF CHINA IN INTERNATIONAL PERSPECTIVE

By Nick Eberstadt*

CONTENTS

Page
I. Introduction 264
II. Health 268
III. Nutrition 275
IV. Literacy 281
V. Status of Women 285
VI. Concluding Remarks 288

TABLES

1. Estimated expectation of life at birth for the PRC and other selected regions, c.1950–c.1980 293
2. Estimated infant mortality rates for the PRC and other selected regions, c.1950–c.1980 296
3. Unadjusted Chinese estimates of life expectation at birth in the PRC by Province 298
4. Estimates of regional differences in life expectation at birth in the PRC, India and Brazil for selected years 299
5. Estimated Indices of economic and demographic change in the PRC during the period of readjustment, 1978–1982 300
6. Estimated daily per capita caloric availability in the PRC for selected years, 1952–1981 301
7. Estimated daily per capita caloric availability in the PRC by Province Autonomous Region, 1980 302
8. Variation in estimated caloric availability within the People's Republic of China, India, Indonesia and Brazil 303
9. Estimated fraction of total caloric availability derived from "Grain": PRC and selected other regions 306
10. Estimated fraction of household expenditure allocated to food in urban and rural areas: PRC and selected other regions 307
11. Estimated mortality rates for children from 1 to 4 years of age in the PRC and selected other regions, c.1950–c.1980 308
12. Median heights and weights for children in the PRC, Brazil and Korea 311
13. Estimated adult rates of illitercy in the PRC and other selected regions, c.1950–c.1980 313
14. Regional variations in estimated adult illiteracy: PRC, India, Indonesia, and Brazil 315
15. Estimated rates of illiteracy for younger age cohorts: PRC, India, Indonesia, and Brazil 316
16. Estimated gross and net primary enrollment ratios for the PRC and selected other regions, 1980 317
17. Differences in estimated male and female illiteracy rates for the PRC and selected other regions, 1980 319
18. Differences between estimated male and female gross primary enrollment ratio in the PRC and selected other regions 321

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19. Estimated ratio of female to male mortality rates for the ages 1-4, PRC and other selected regions, c.1950–c.1980 322
20. World Bank Estimates for GDP Per Capita and Life Expectation at Birth for Nations With Life Expectations at Birth Similar to that of the People's Republic of China, c.1982 323
21. World Bank Estimates for GDP Per Capita and Adult Illiteracy Rates for Nations With Estimated Adult Illiteracy Rates Similar to that of the People's Republic of China, c.1982. 324

I. INTRODUCTION

From the start of the Great Leap Forward in 1958 through the conclusion of the Third Plenary Session of the Eleventh Communist Party of China Central Committee in December 1978, the material situation of the Chinese people was, at best, a matter of informed speculation in the outside world. The political and social changes witnessed on the Chinese Mainland over these two decades were profound, but the statistics which might have born witness to the impact of various policies and events on the living standards of China's peoples were first at times systematically falsified, and in later years often simply not published. Despite paintaking and assiduous research by a small number of Western scholars,[1] statistical reconstructions of macroeconomic trends in China during those years were necessarily tentative, and depictions of the material circumstances of the populace itself were all the more conjectural.

Much more is known today about poverty in China, and its patterns. The "period of readjustment"—which began with the Third Plenum in 1978, and whose duration continues to be extended—has seen the reintroduction of data and statistics into the process of formal policy discourse within the People's Republic of China. A wide range of numerical information, much of which had been unavailable for decades, is now being released not only through specific speeches, broadcasts, and official pronouncements, but also through increasingly regularized communication with international institutions, by the increasingly systematic publication of statistical compendia, and through the pages of domestic journals devoted to research in the social or natural sciences. These new data make it possible to examine China's achievements in limiting and alleviating material deprivation since the founding of the People's Republic in 1949, to assess the scope and nature of material poverty on the Chinese Mainland today, and to compare the Communist Chinese government's performance in improving the material circumstances in the society beneath it with that of other states.[2]

It should go without saying that China's new data on economy and society must be handled with care. The accuracy of statistics depend upon the capabilities of the agencies which generate them, and China's current capabilities for gathering representative and timely data should not be exaggerated. The State Statistical Bureau was a casualty of the Great Leap Forward; it was purged again during the Cultural Revolution. According to Yu Guanyuan, vice President of the PRC Academy of Sciences, there was a point when "statistical work in China [at the State Statistical Bureau] was done by only 14 persons".[3] Data-gathering capabilities also suffered at the provincial and the local level during these unheavals. In Shanghai—China's foremost industrial center—all statistical work is now said to have "virtually ceased" during one period[4]; statistical units were apparently disbanded, even down to the factory level. The extent of the damage of China's statistical apparatus is suggested by the recent revelation by a leading Chinese health statistician that "population and mortality statistics were largely destroyed during the period 1966-1972".[5] Rebuilding a largely shattered national statistical apparatus could only be a formidable task—and a slow one. In 1981, more than two years after the "historical Third Plenary Session", the staff of the State Statistical Bureau was only half as large as it had been in 1965, and less than a third of its size in 1956.[6]

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[1] A list of such works would include, for example, John S. Aird, *The Size, Composition, And Growth Of The Population Of Mainland China* (New York: AMS Press, 1973); Kang Chao, *Agricultural Production In Communist China, 1949-1965* (Madison: University Of Wisconsin Press, 1971), and *idem.*, *Capital Formation In Mainland China, 1952-65* (Berkeley: University Of California Press, 1974); Nai-ruenn Chen and Walter Galenson, *The Chinese Economy Under Communism* (Chicago: Aldine Publishing Company, 1969); Alexander Eckstein, Walter Galenson, and Ta-chung Liu, eds., *Economic Trends In Communist China* (Chicago: Aldine Publishing Company, 1968); and Robert Michael Field, Nicholas R. Lardy, and John Philip Emerson, *A Reconstruction Of The Gross Value Of Industrial Output By Province In The People's Republic of China, 1949-73* (Washington: Department of Commerce, Bureau of Economic Analysis, 1975).

[2] This paper will deal only with *material* poverty. Spiritual and cultural poverty may be no less real than material poverty, and may in ways do more to shape the quality of life for individuals and nations, but these are issues far beyond the scope of the present discussion.

Even as China's statistical system recuperates from earlier injuries and develops new abilities to gather, process, and analyze information, data on poverty are likely to remain a problem area. Li Chengrui, currently director of the State Statistical Bureau, seemed to acknowledge as much in an article in 1983, when he noted pointedly that, "Our statistics on social affairs, including such areas as population, labor, wages, education, cultural activities, public health, physical education, policies and law . . . are still insufficient as a comprehensive and systematic representation of our country's social developments." [7] Three factors in particular complicate efforts to produce accurate numbers on living conditions in the People's Republic of China. The first is falsification of data at the lower levels. Deliberate misrepresentation of local conditions has been something of a tradition in the new China: planners recognized the problem well before the Giant Leap Forward and have dealt with it ever since.[8] As was dramatized by the "Dazhai brigade incident", even flagrant and continuing falsification of local data may go unnoticed or unchallenged for years. Though recent directives have recognized the fact of falsifications at the local level, they have done little to reduce the pressure on local cardes to doctor figures. A 1984 State Council "Resolution On Strengthening Statistical Work", for instance, states that "Insuring the accuracy of data is a basic demand of statistical work", but at the same time stipulates that "local statistics bureaus of all levels are under the dual jurisdiction of the people's governments at their particular levels and the statistical bureau at the higher levels . . ." [9]—an arrangement which could all too easily result in conflicting obligations and responsibilities for statisticians in units whose performance is feared to be unsatisfactory. In the past, cadres seem to have felt pressure to adjust local statistics most acutely during political campaigns, or on topics of special political sensitivity. With the resolution at the 12th National People's Congress in September 1982 that "we must firmly adhere to the principle of 'first feeding the people and second to building the country' ", [10] there can be little doubt in any cadre's mind that poverty is currently a politically sensitive issue.

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[3] Quoted in S. Ivanov, "Statistics and Politics", in the Soviet journal *Far Eastern Affairs*, No. 3, 1982.

[4] International Bank For Reconstruction And Development, *China: Socialist Economic Development* (Washington: IBRD, 1983), Volume I, Annex A.

[5] Ling Rui-Zhu, "A Brief Account Of 30 Years' Mortality Of Chinese Population, *World Health Statistics Quarterly*, Volume 34, No. 2, 1981.

[6] *China: Socialist Economic Development, op. cit.*; Choh-ming Li, *The Statistical System Of Communist China* (Berkeley: University Of California Press, 1962).

[7] Li Chengrui, "Initiating New Aspects Of Statistical Work", *Tongji* No. 7, 1983, translated in Joint Publication Research Service (hereafter JPRS), No. 84564, October 19, 1983.

[8] *The Statistical System of China, op. cit.*; see also John S. Aird, "Recent Demographic Data From China: Problems and Prospects" in US Congress Joint Economic Committee, *China Under The Four Modernizations* (Washington: Government Printing Office, 1982), Volume I.

A second problem, perhaps even more germane to the analysis of poverty, is that China's statistical agencies have apparently never developed an ability to conduct genuinely random sample surveys.[11] Sample surveys in the PRC typically appear to overestimate local or national output, income, and consumption.[12] This upward bias reflects systematic underrepresentation of poorer localities and population groups in chosen samples. As Chinese authorities explicitly recognize, the devolution of the commune and the rise of the currently favored "production responsibility system" in the countryside significantly reduce the usefulness of the production brigade as a unit for gathering information about the rural population.[13] Direct investigation of conditions through sample surveys of household units is the only practical alternative. Local reports have frankly admitted that the pace of social change in rural areas has exceeded the statistical apparatus' abilities to adjust methods to the new requirements incumbent upon it.[14] Unitl this gap is closed, figures on living standards for the vast majority of China's population may be beset by margins of sampling error larger than the annual changes that such figures presume to measure.

The third problem concerns the question of indexing, which, among other things, permits measurement of changes in real purchasing power. The construction of index systems by which to adjust for or standardize economic change is a theoretically complex matter, even under the best of circumstances,[15] and is more troublesome all the more in China's current circumstances. As a recent article in China's leading statistical journal put it, ". . . we have not yet formulated a complete and scientific system of index. Soon after the index of the economic results was set up [a few years ago], some interrelated indices failed to link together or to complement each other . . . it was even difficult to link up the related statistical index of commodity prices with the statistical index of the overall balance in the national economy . . . The problems that urgently need to be solved at present include: . . . how to link up . . . the price index of daily expenses of the staff members and workers . . . with the survey of the livelihood of the staff members and workers . . ." [16] Until the trouble with indices is better resolved, data on economic change, whether pertaining to living standards or any other issue, may easily mislead the observer who wishes to invest them with great significance or meaning.[17]

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[9] "State Council Resolution On Strengthening Statistical Work 6 January 1984, Reference 'Guofa (1984) #7' ", *Bulletin Of The State Council Of The People's Republic Of China* No. 1, 1984, translated in JPRS, CEA-84-085, October 16, 1984.

[10] "Text Of The Sixth Five Year Plan (1981-85)", *Bulletin Of The State Council Of The People's Republic Of China* No. 9, 1983, translated in JPRS, CEA-84-005, January 25, 1984.

[11] This problem is discussed at greater lenght in *China: Socialist Economic Development, loc. cit.* Volume I, Annex A.

[12] See, for example, S. Lee Travers, "Bias in Chinese economic statistics: the case of the typical example investigation", *China Quarterly*, September 1982.

[13] For a detailed discussion of this proglem, see "New Lesson For Agricultural Statistics", *Shanxi Ribao*, August 7, 1983, translated in JPRS, No. 84770, November 17, 1983.

[14] "Agricultural Statistical Work To Be Restructured", *Shanxi Ribao*. August 7, 1983, translated in JPRS, No. 84770, November 17, 1983.

[15] For a brief discussion of this problem, see Nick Eberstadt, "Material Progress In Communist And Non-Communist Countries In Less Developed Regions In The Postwar Era", in Peter L. Berger and Philip Marcus, eds., *The Calculus of Hope* (forthcoming).

The task of constructing a statistical apparatus which can render an accurate and timely depiction of social and economic conditions in China, then, is by no means completed. Nor is it seen as such by China's highest authorities. China's National Statistics Law, enacted in 1984, will require "six transformations" in data gathering, processing, and analysis from the various organs responsible for the collection of numbers; some provincial statistical bureaus have set themselves the target of two years to meet these new standards.[18] For the time being, however, it is said that "the development of statistical work is very uneven in the country as a whole" and that it "falls behind the needs of the four modernizations program".[19] Chinese policymakers, quite naturally, are sensitive to the shortcomings of the statistical system upon which they must depend in their current attempts to create "socialism with Chinese characteristics"; yet their criticisms should not prompt foreign observers to discount the competence which Chinese statistical authorities have demonstrated in given areas. Independent analyses of the Chinese censuses of 1964 and 1982, for example, have suggested that these mass exercises in enumeration achieved a high level of coverage and unusually good accuracy in response.[20] (This accomplishment seems all the more impressive when compared with census results from low income nations with more technically proficient, and less politically vulnerable, statistical apparatuses.)[21] "Mobilization", in the view many students of comparative political development,[22] has been Beijing's long suit since 1949, and, at least to date, this seems to hold true in statistics as well as politics: modern China appears to be in the anomalous position of often being able to assess national conditions more accurately through mass data-gathering exertions than through the infinitely less taxing procedure of the independent, investigative sample survey. We should keep this in mind in our evaluations.

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[16] Zhang Yigeng, "We Must Have A New Improvement In Statistical Work Concerning Commodity Prices", *Tongji*, No. 5, 1983, translated in JPRS, No. 84356, September 19, 1983.

[17] A recent indication of the seriousness of the problem comes from Chinese trade statistics. The Ministry of Foreign Trade has announced that trade increased by 38% for the first six months of 1984 in comparison with the previous year. The International Monetary Fund, of which China is a member, and to which China is thus obliged to provide certain basic and often confidential data, has also made an estimate for the increase in trade in China between the first half of 1983 and the first half of 1984. By the IMF's calculations, the increase was 6%. *The Economist*, February 16, 1985.

[18] "State Council Resolution On Strengthening Statistical Work", *Bulletin of the State Council of the People's Republic Of China*, No. 1, 1984, translated in JPRS, CEA-84-042, June 5, 1984.

[19] Huang Hai, "Problems In The Reform Of Statistical Work", *Renmin Ribao*, July 8, 1983 translated in *Chinese Economic Studies*, Spring 1984.

[20] Ansley J. Coale, *Rapid Population Change In China, 1952-1982* (Washington: National Academy Press, 1984).

[21] China's estimated rate of under-enumeration, for example, was several times lower in its 1982 census than was India's in its 1981 census. See US Bureau of the Census, *World Population: 1983* (Washington: Department of Commerce, 1983).

[22] See, for example, Lucian W. Pye, *The Dynamics Of Chinese Politics* (Cambridge, Mass.: OG&H Publishers, 1981).

Even under the best of statistical circumstances, material poverty is imperfectly reflected in national statistics.[23] The problem is intrinsic to poverty itself, and thus may be attenuated but never resolved. The very characteristics which define material deprivation mean that poor people can be expected to leave fainter statistical trails than richer people, even in technically advanced or tightly regimented societies. Moreover, material poverty is not a single, homogeneous, and fixed phenomenon but instead a very human problem: variable, behavioristic and thus at least partly attitudinal.[24] Any single set of criteria for measuring poverty will, unavoidably, exclude useful and important information.

All statistical assessments of poverty, unfortunately, must to some extent be arbitrary; some, however, may be less arbitrary than others. Certainly some can be less misleading than others. The difficulties in using such economic measures as income per capita and income distribution, for instance, are legion.[25] Very often these measures are misused. In the case of China, the problem of extracting meaning from economic data is more than ordinarily complex, insofar as one cannot expect prices or wages to be in equilibrium, or even heading in the direction of equilibrium.[26] In general, it may be argued that physical and behavioral measures provide more insight into conditions of poverty than do financial or economic measures, since, in general, the former are easier to quantify, less sensitive to valuation biases, and thus abler to transcend the profound differences in political and social systems which separate various peoples of the world today. (Economic data, to be sure, have their place in describing poverty, but they often seem to be most useful in highlighting patterns of behavior rather than characterizing levels or standards of income).[27]

In the pages that follow, we will try to use national statistics to speak to four distinct, but overlapping, aspects of material poverty: health, nutrition, literacy, and the status of women.

II. HEALTH

Health conditions provide a primary and basic perspective on poverty within any community or population. They are the clearest and most literal reflection of a group's life chances, in large part because good health comes as close to being a universally desired attribute as any personal characteristic over which individuals and households may exercise choice.

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[23] The problem is discussed at greater length in Eberstadt, *loc. cit.*

[24] Some of the philosophical and ontological problems in measuring and quantifying human poverty are touched upon skillfully in Amartya K. Sen, "Poor, Relatively Speaking", *Oxford Economic Papers*, October 1982. Some of the practical questions which arise in measuring poverty are treated in Michael Lipton, "The Poor And The Poorest" (Washington: International Bank For Reconstruction And Development, unpublished manuscript, 1982).

[25] See, for example, Eberstadt, *loc. cit.*, and Mark Lilla," Why the "income distribution is so misleading", *The Public Interest*, Fall 1984.

[26] For a careful elaboration of this point, see Gavin Peebles, "Inflation In The People's Republic Of China, 1950-82", *Three Banks Review*, June 1984.

[27] See, for example, V.V. Bhanoji Rao, "Measurement of Deprivation and Poverty Based on the Proportion Spent on Food", *World Development*, April 1981, and C.H. Shah, "Food Preferences And The Poor", *Society/Transaction*, September 1980.

The least ambiguous indicator of a population's health is its mortality rate. Expectation of life at birth is perhaps the most comprehensive of the many different measures of mortality within a population. For nations with accurate data on age-sex structures and near-complete registration of births and deaths, the calculation of life expectancy is a fairly straightforward arithmetic procedure. When data on population distribution are inadequate or inconsistent, or when registration systems undercount births or deaths to any significant degree, the construction of "life tables" (which give the pattern of mortality for every age group within a population, and thus also the expectation of life at birth) requires that assumptions guide results.

China's vital registration systems, though more complete than those of many other low-income nations, are inadequate for the task of direct estimation of life expectancy.[28] Fortunately, three comparatively reliable censuses (conducted in 1953, 1964 and 1982) and a retrospective nationwide fertility study (1982) have made it possible for analysts to reconstruct mortality patterns in China with some confidence. Even so, difference among these estimates suggest the extent to which results remain sensitive to alternative assumptions and techniques.[29]

The most comprehensive analysis of China's newly released population data is perhaps the one undertaken by Banister.[30] According to her estimates, life expectancy in China rose by over twenty years between the early 1950s and 1970. Her estimates suggests that it increased over the 1970s as well, rising by almost another four years (Table 1).

Placing a country's record in international perspective requires comparisons with other nations. For China, this presents special problems. In terms of population, diversity, history, and administrative requirements, Mainland China is unique. With life expectancy, as with other social achievements, China's performance might best be highlighted by contrast against a variety of nations and populations with which it can be said to share certain specific characteristics.

If China's progress in raising life expectancy could be judged by the endpoints in Table 1 alone, evaluation of the country's performance would be a straightforward task. There is, unfortunately, a terrible deviation from trend in the middle of this period. By Banister's estimate, life expectancy in China dropped by half between

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[28] For an exposition on the workings of the registration system at the grassroots level, see William H. Lavely, "China's Population Statistics at the Local Level", *Population Index*, Winter 1982.

[29] These differences can be seen in comparing the reconstructions in Judith Banister, "An Analysis of Recent Data on the Population of China", *Population And Development Review*, June 1984, with those in Kenneth Hill, "Demographic Trends In China, 1950-81", Supplementary Paper 1 to International Bank For Reconstruction And Development, *The Health Sector In China* (Washington: IBRD, unpublished paper, 1983). For 1970, for example, Banister estimates expectation of life at birth in China at 61 years, and infant mortality at 70 per thousand. Hill's computations result in a life expectancy estimate of 55 years, and an infant mortality rate of 109.

[30] Banister, op. cit.; see also Judith Banister, "Population Policy and Trends in China, 1978-83", *China Quarterly*, December 1984.

1957 and 1960—from almost 50 years to under 25 years.[31] It would take a catastrophe of extraordinary proportions to depress life expectancy for an entire population so radically. The estimated decline in life expectancy in China during those years would be both more rapid and more substantial than the drop in life expectancy for Japanese men over the course of World War II.[32] This drop in life expectancy in China appears to be largely a consequence of the implementation of policies sanctioned by the leadership of the Communist Party of China: specifically, those associated with the Great Leap Forward. While adverse weather may well have affected agriculture in China in the years following the Great Leap Forward, as China's official commentators still insist (albeit with much less conviction than in the past) [33] purposeful government action can prevent bad weather from determining the national death rate, even in a low income society. In India, for example, regional and even national harvest failures have occurred on several occasions since the 1950s, but government policies have consistently checked the increase in mortality during these food shortfalls, and has often prevented death rates in afflicted areas from rising measurably.[34]

The Communist Chinese government is in an unusual situation. The same state apparatus (and many of the same officials) to oversee modern China's impressive long-term increase in life expectancy also approved decisions which drove short-term health conditions to alarming and unnecessary depths. In other nations, the reduction of mortality levels typically has coincided with the stabilization of mortality. Revolutionary China's mortality trends diverge from this pattern. For the period in question, taken as a whole, it would appear that instability in mortality levels and the pace of improvement in long-run mortality levels were *positively* related.

Infant mortality rates (the number of children to die before their first birthday from every thousand born) are another important measure of health conditions. The rate is significant not only because infants are more vulnerable than adults to the physicial insults associated with poverty, and because parents and societies typically place high values on seeing their young survive, but because much of the difference in lifespan between low income nations and more affluent societies is attributable to differences in the death rates of infants and children.[35] Significant though the infant mortality rate may be, infant mortality itself is especially prone to underregistration. Only a few countries in Asia come close to a complete registration of infant deaths, and China is not one of them. *Chinese Health Care*, a recent compendium complied under the direction of the committee of Medical Sciences, at the Ministry of Public Health, puts infant mortality in China in 1982 at 13.2 per thousand in cities and 27.2 in rural areas,[36] implying a nationwide infant mortality rate of about 24.3 per thousand. Subsequently, Chinese researchers have produced a "life table" for 1981 in which infant mortality was estimated at c. 34.68 per thousand.[37] The difference between these two estimates is about 30%. More sophisticated analyses of Chinese data, using indirect techniques to correct for underreporting of infant deaths, have suggested that as many as half of all infant deaths in China in recent years may have gone unregistered,[38] although the precise fraction cannot be determined. Reconstruction of infant mortality rates are sensitive to the assumptions implicit in the indirect techniques employed. Thus, where infant mortality is high, its exact level is also likely to be in doubt. We should keep this in mind in perusing Table 2.

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[31] Banister, "An Analysis of Recent Data on the Population of China", loc. cit.

[32] Institute of Populations *Problems The 22nd Abridged Life Tables* (Tokyo: Ministry of Health And Welfare, 1970.)

[33] The continued, if diminished, emphasis in current policy analyses on the sale of adverse weather in difficulties following the great leap funnel may even be found in such recent works as Ma Hong, *New Strategy For China's Economy* (Beijing: New World Press 1983).

[34] See, for example, Alan D. Berg, "Famine Contained: Notes and Lessons From the Bihar Experience," Brookings Institution Reprint Series No. 211, 1971.

[35] International Bank For Reconstruction and Development, *Health: A Sector Paper* (Washington: IBRD, 1980). The paper estimates that as much as two thirds of the difference in life expectancy between "developed regions" and "developing regions" may be accounted for by differences in the mortality of children under 5 years of age.

Table 2 and Table 1 seem to tell consistent stories. Unlike other countries, where reduction and stablization of infant mortality typically occurred simultaneously, China appears to have achieved long term reduction in infant mortality after experiencing a dramatic upsurge. Though infant mortality rates in India and Indonesia remain a matter shaded by some uncertainties, there is little doubt that they are at least twice as high in these nations today as in China; quite possibly the disparity may be even greater than that. China's long run progress in reducing infant mortality compares favorably with Sri Lanka's and South Korea's countries sometimes cited for their strides in improving infant health. A large gap still seems to separate estimated infant mortality rates in China from those of the overseas Chinese populations and Japan (areas where registration of infant mortality is now complete, or close to complete). Interestingly, China's estimated decline in infant mortality during the 1970's was slower than the declines in Japan, Taiwan, or Singapore in the 1950's, the years in which infant mortality rates in China and these other places were at roughly similar estimated levels.

Regional differences in life expectancy are common to all nations; the more populous and diverse the country, the larger the differences that may be expected. (Within the United States, a developed nation where regional diversity is no longer so pronounced, the difference in life expectancy between Hawaii and South Carolina in 1970 was nevertheless almost six years.)[39] Chinese scholars have attempted to compute life expectancy by province in China on the basis of a "national" cancer epidemiolgy survey covering mortality during the years 1973-75.[40] Their computations appear in

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[36] Chen Haifeng and Zhu Chao, eds., *Chinese Health Care: A Comprehensive Review Of The Health Service Of The People's Republic of China* (Lancarter, England: MTP Press Limited, 1984).

[37] Jiang Zhenghua and Zhu Limei, *Renkou Yu Jingji* No. 3, 1984, translated in JPRS-CPS-84-075 November 1, 1984.

[38] Banister's estimate of infant mortality for China for 1982 was 46 per thousand suggesting an underregistration of infant deaths for that year of over 47%. See, "An Analysis of Recent Data on the Population of China", *loc. cit.* Jiang and Zhu, *op. cit.*, note that in a Wuxi county experiment, "complete" infant mortality checking in 1981 produced a measured rate of infant mortality some 60% higher than that of selected reporting countries in 1982.

[39] *State Life Tables: 1969-71* Washington: US Department of Health, Education, and Welfare, National Center for Health Statistics, June 1975.

[40] Rong Shoude *et al.*, "Analysis of Life Expectancy In China, 1973-75", quoted in *China: Socialist Economic Development*, *loc. cit.*, Volume I. For more information on this survey, see

Continued

Table 3. These estimates exclude five provinces or autonomous regions, accounting for over a fifth of China's population. Three of the excluded regions—Gansu, Ningxia, and Shandong—were characterized by an incidence of chronic agricultural poverty in late 1970s which was well above the national average, according to Ministry of Agriculture investigations.[41] Among those provinces, autonomous regions, and municipalities for which life expectancy estimates were presented, it seems likely that underregistration of deaths, and thus overestimation of expectation of life at birth, was most common in the least developed areas. In Xizang (Tibet), for example, a recent report has stated that infant mortality in the early 1980s was 190 per thousand, and that this level represented a significant improvement over earlier years.[42] It is virtually impossible to reconcile an estimate of expectation of life at birth of over 61 years—the Chinese authors' estimate for Tibet for 1973–75—with an infant mortality rate of 190 per thousand, let alone any higher figure. Thus, the interprovincial differences in Table 3 may safely be presumed to represent a minimum estimate of actual disparities.

The regional differences in life expectancy computed for China are contrasted with corresponding estimates of disparities in India and Brazil, two other populous and diverse nations, in Table 4.

While China's interprovincial differences in life expectancy do not appear to be extreme when placed in this international perspective, disparities within provinces do seem to be pronounced. The cleavage between rural and urban areas is particularly striking. Recent analysis by Chinese scholars has estimated the gap in life expectacy between the cities and the countryside to be on the order of 3–4 years;[43] these computations, however, do not seem to take the disproportionate underregistration of deaths in rural areas into account. A World Bank mission on rural health and medical education for China has estimated that the difference in lifespans between urban and rural areas at the time of the cancer survey may have been on the order of twelve years.[44] This would be a greater inequality between city and countryside than in India in 1971 (an estimated 8 years),[45] or Indonesia in 1971 (an estimated 6 years),[46] and would be much wider than the difference in Brazil (an estimated maximum of 2–3 years).[47] No other nation which has reached China's estimated level of overall national life expectancy

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Judith Banister and Samuel H. Preston, "Mortality In China", *Population And Development Review*, March 1981.

[41] Ministry of Agriculture Commune Management Bureau, "Poor Countries in China, 1977–79", *Xinhua Yuebao*, No. 2, 1981, cited in Nicholas R. Lardy, *Agriculture In China's Modern Economic Development* (New York: Cambridge University Press, 1983). In this survey, chronic poverty was defined a "per capita distributed collective income averaging less than 50 yuan in each of three years 1977–79".

[42] *Xinhua*, September 21, 1984, translated in JPRS, CPS-84-066, October 5, 1984.

[43] Jiang and Zhu, *loc. cit.*

[44] International Bank For Reconstruction And Development, *The Health Sector In China* (Washington: IBRD, 1984).

[45] Morris K. Morris and Michele McAlpin, "Physical Quality Of Life In India By State", (unpublished paper, 1981).

[46] Lee-jay Cho *et al.*, *Population Growth In Indonesia* (Honolulu: University of Hawaii Press, 1980).

[47] *Anuario Estatistico Do Brasil, 1978* (Rio de Janeiro: IBGE, 1978).

has such a pronounced difference in life expectancy separating its urban and rural population.[48]

City people have always lived a comparatively privileged life in China.[49] On the eve of the Communist victory, for example, life expectancy in Shanghai may have been eight years higher than for the nation as a whole.[50] What is striking about modern China's development strategy is that it seems to have preserved a demographic inequality which has tended to diminish over time in other nations.[51]

Government policy appears to contribute actively to this pattern of inequality in modern China. Since the late 1950s, comprehensive administrative restrictions and controls against what is termed "blind migration" have made it difficult for rural people to move to the cities on their own and still harder to gain official sanction for an unscheduled change of residence.[52] Even with the relaxation of anti-urban-mobility policies since the Third Plenum in 1978,[53] the apparatus for impeding or preventing voluntary movement to the cities remains extensive, imposing, and active.[54] Modern China, moreover, has seen the dramatic expansion of a system of subsidies which maintains the difference in consumption between agricultural and non-agricultural populations.[55] (Although these subsidies are mostly not explicitly directed to the cities, being generally conferred instead on the households of "staff and workers at public and state enterprises", in practice the overlap between the two categories is very substantial; in 1980, for example, over five-sixths of the workers entitled to subsidized food lived in cities, and virtually all households legally registered in the cities were entitled to subsidized food.[56]) According to the World Bank's health sector mission to China, state expenditure on medical care on a per capita basis in 1981 was over nine times greater in urban areas than rural areas: while China's rural population does in some measure benefit from urban health expenditures; time through the medical referral mechanism, the gap in health subsidies for rural and urban people is nevertheless profound.[57] Per capita food subsidies work out to be well over ten times higher on average in urban areas than for rural ones in 1981.[58] Extending to China's rural population the nutritional and medical services currently underwritten by subsidy in urban areas would be an awesomely expensive proposition for the Chinese state. For 1981, for example, it would have cost the central government over 90 billion yuan to raise per capita subsidies for medical care and food in rural areas up to the urban level; total state revenues for that year totalled just under 109 billion yuan.[59] Matching per capita urban subsidies for all services for the rural population for that same year would have required a tripling of total government expenditures.[60]

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[48] For some benchmarks, see United Nations, *Levels And Trends Of Mortality Since 1950* (New York: United Nations, 1982) and *idem.*, *Demographic Yearbook 1982* (New York: United Nations, 1984).

[49] For more information, see G. William Skinner, ed., *The City In Late Imperial China* (Stanford: Stanford University Press, 1977); see also Jacques Gernet, *Daily Life In China On The Eve Of The Mongol Invasion, 1250-1276* (Stanford: Stanford University Press, 1962).

[50] Derived from *Xinhua*, May 24, 1984, translated in JPRS, CPS-84-045, June 28, 1984, and *Chinese Health Care*, *loc. cit.*

[51] See, for example, *The Determinants And Consequences Of Population Trends* (New York: United Nations, 1973).

[52] See Martin K. Whyte and William L. Parish, *Urban Life In Contemporary China* (Chicago: University Of Chicago Press, 1984); see also Parris H. Chang, "Control of Urbaization: The Chinese Approach", *Asia Quarterly*, No. 3, 1979.

[53] Perhaps the most important official relaxation of rules concerns the rustication of urban youth; since 1980 the Chinese government has announced no new quotas for the settlement of city people in the countryside. See Judith Banister, "Population Policy and Trends in China, 1978-83", *loc. cit.*

[54] In the investigation in Wuxi city in 1981, for example, scarcely 1% of the people examined were not registered to live in Wuxi, a fact which may speak to the tight and continuing nature of restrictions against voluntary in-migration to the cities. Investigative results cited in Zhiang and Zhu, *loc. cit.*

[55] Nicholas R. Lardy, "Agricultural Prices In China", *World Bank Staff Working Papers*, No. 606, 1983.

[56] "Agricultural Prices In China", *op. cit.*

[57] *The Health Sector In China*, *loc. cit.*

Between the early 1950s and the early 1980s, China's overall improvement in life expectancy was, by any historical or international measure, very rapid. (Even with the disparity between life expectancy in urban and rural areas, life expectancy in the Chinese countryside in the early 1970s would have been over 60; in the period before the Liberation, it is estimated to have been under 25.[61]) China's pace of health improvement, however, seems to have slowed dramatically over the course of the 1970s. A slowdown of increments in life expectancy at higher overall levels of health is a pattern common among nations, since the locus of health problems tends to shift towards diseases which are more difficult to prevent and more expensive to cure.[62] The tendency toward slowdown in mortality reduction, however, is far from being an iron rule. In the United States, for example, overall life expectancy increased by less than one year between 1955 and 1965, but it rose by almost two and a half years between 1965 and 1975, and by over three years over the past ten years.[63] At any given level of national income or national mortality, social and economic policies heavily influence the prospects for continued improvements in national health.

China's slowdown in life expectancy improvement in the 1970s appears to have been more pronounced than the slowdown for other, overseas Chinese populations when they were at similar levels of life expectancy. While China's sheer size undoubtedly presents administrators with special problems in attempting to implement uniform social policy for the nation as a whole, it seems quite possible that policies chosen may themselves have contributed to the slowdown in health improvements. The system of fiscal subsidies to improve living standards, which has evidently grown vigorously during the "period of readjustment" for urban and state employee households, would seem to have distinct limits in a low income nation as a vehicle for sustained improvements in health levels for the population as a whole. At the same time, some of the recent policy measures enacted in the hope of raising overall income levels may exert an unanticipated pressure on health conditions for many households. Transition to a "responsibility system" of household-oriented agricultural management in the countryside, for example, has led to the dismantling of administrative apparatuses previously connected with the commune and the production brigade—including both preventative and curative health services. With the fading of the work-point system, collective mechanisms for insuring the financial cost of medical treatment in rural areas have also atrophied. In the late 1970s, according to Chinese sources, over 80 percent of the rural population was covered by cooperative medical guarantees of various sorts.[64] By 1981, the fraction is said to have declined to under 60 percent of the rural population;[65] for 1983, according to Hsiao, "senior public health officials (say that) the latest survey shows that only 40 to 45 percent of the rural population has such coverage".[66] With a decreasing proportion of the rural population covered by health insurance guarantees, and an increasing fraction of the rural population serviced on a flat, pay-as-you-go basis, health care treatment in China would be predicted to reflect economic disparities between households and regions more fully than it did in the past. The ongoing population control campaign, with its aggressive emphasis on limiting parents in rural areas to a single child, appears to have accidentally set the stage for the re-emergence of female infanticide in the Chinese countryside as a widespread phenomenon.[67] China's 1982 census, in any event, indicates an abnormally high ratio of boys to girls for those aged under one year, and the Chinese press has carried a continuing stream of articles, editorials, and official directives focusing on and exhorting against the practices of "abandoning and killing baby girls"[68] and "maltreating or persecuting women who give birth to baby girls".[69]

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[58] Calculated on the basis of "Agricultural Prices In China", *loc. cit.*, and State Statistical Bureau, *Statistical Yearbook Of China 1983* (Hong Kong: Economic Information And Agency, 1983).

[59] *Statistical Yearbook Of China 1983, op. cit.*

[60] Calculated on the basis of "Agricultural Prices In China", *loc. cit.*, and *Statistical Yearbook Of China 1983, op. cit.*

[61] George W. Barclay *et al.*, "A reassessment of the demography of traditional rural China", *Population Index*, October 1976.

[62] Samuel H. Preston, *Mortality Patterns In National Populations* (New York: Academic Press, 1976).

[63] US Bureau of the Census, *Statistical Abstract Of The United States 1984* (Washington: Department of Commerce, 1984).

In China's present policy context, it may be difficult to translate economic gains into improvements in health for the population as a whole. If Banister's estimates are accurate, the first years of the "period of readjustment" may have seen stagnation or even decline of health conditions in China by several meaningful indicies, despite significant reported increases in many measures of economic and social consumption (see Table 5).

III. NUTRITION

For all its importance to individual wellbeing, nutritional status is not easily assessed through social or economic statistics. Margins of error in data on the availability or consumption of foodstuffs are very often greater than the differences between groups of the changes over time such statistics are used to measure.[70] Moreover, considerable uncertainties remain over the criteria by which dietary adequacy should be judged.[71] (The recent Health and Nutrition Examination Survey in the United States, for example, determined that actual per capital intake of the American population was about 1800–1850 calories per day [72]—well below the recommended daily allowances set by the UN Food And Agriculture Organization and the World Health Organization, and lower than some estimates of per capita consumption in Bangladesh.) At present, clinical examination provides the only basis for conclusive assessment of an individual's nutritional wellbeing; since it is not feasible to subject entire national populations to detailed clinical assessments, it is necessary to use imperfect proxies in their place.

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[64] William C. Hsiao, "Transformation Of Health Care In China", *New England Journal Of Medicine*, April 5, 1984.

[65] *The Health Sector In China.*

[66] Hsiao, *op. cit.*

[67] For a detailed examination of this question, see John S. Aird's paper in this volume. See also Wong Siu-lun, "Consequences of China's New Population Policy", *China Quarterly*, June 1984.

[68] *Hongqi* No. 5, 1983, translated in JPRS, No. 83318, April 22, 1983.

[69] *Hongqi* No. 17, 1983, translated in JPRS, No. 84595, October 24, 1983.

A first step in assessing a nation's food situation might be to estimate the overall availability of food per person. National per capita availability of food cannot provide insight into two of the processes that are decisive in linking the national food situation to individual wellbeing: the distribution of available food, and the consumption patterns of the food that is distributed. National per capita food availability is, thus, a measure of the maximum potential standard of nutritional comfort of population may enjoy rather than a direct measure of the deprivation affecting the least advantaged elements within society.[73]

In 1981 China released detailed estimates of output for a variety of agricultural products for selected years in the past; estimates for the output of "grain", the principal component in China's diet, extended back to 1950. Using these data, figures on China's international food trade compiled by the Food and Agricultural Organization and the US Department of Agriculture, and recent estimates for the changes in China's population since the Liberation, Piazza has attempted to construct "food balance sheets" for China for the years 1950 to 1981.[74] Using the standard caloric valuations for the various foodstuffs represented, it is possible derive estimates of national caloric availability per capita from the food balance sheets. Table 6 presents Piazza's caloric estimates for selected years—generally years in which data on output were most comprehensive.

Piazza's estimates are subject to a number of qualifications. They cannot adjust for fluctuations in national grain reserve stockpiles, which may raise or lower national caloric availability per capita in any given year. They use conservative estimates for both the extent of the feedstock economy and the conversion factors within it, thus possibly adding an upward bias to more recent estimates of caloric availability per capita. And they make virtually no allowance for the growth in industrial demand of foodstuffs for non-food use. Taken together, these methodological specifics are likely to exert an upward bias on estimates for more recent years. Upward bias would be consistent with the seeming discrepancy between Piazza's estimates and Chinese estimates of changes in national grain consumption per capita. By Piazza's computations, national caloric availability per capita rose by nearly 15 percent between 1957 and 1978. According to Chinese sources, per capita consumption of grains—which provide the overwhelming bulk of calories on the Mainland China diet—*declined* by about 3 percent over the same period.[75] The discrepancy, of course, speaks not only to possible upward bias in Piazza's calculations, but possibly also to changing grain reserve policies, and to changing patterns of loss and wastage within the transportation, storage, and marketing processes—factors which cannot be taken into account in these calculations. Thus, even with these broad national estimates, we should be careful in divining trends.

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[70] This problem is addressed at greater length in Nick Eberstadt and Clifford M. Lewis, "Global Nutrition And The World Food Situation" (forthcoming).

[71] Michael Lipton, "Poverty, Undernutrition and Hunger", *World Bank Staff Working Papers*, No. 597, 1983.

[72] *Dietary Intake Source Data: United States, 1976-80* (Hyattsville, Md.: US Department of Health and Human Services, National Center for Health Statistics, March 1983).

[73] See Eberstadt and Lewis, *loc. cit.*

[74] Alan Piazza. "Trends in Food and Nutrient Availability in China, 1950-81" *World Bank Staff Working Papers, No. 607, 1983.*

The years since the "period of readjustment" may be the first time since the Liberation that national per capita caloric availability has stayed above the level maintained in the late 1920s and early 1930s. Buck's surveys of farm households, conducted between 1929 and 1933, indicated that per capita caloric availability in rural areas was over 2500.[76] Though his estimates were consistent with those of other contemporary surveys,[77] it is generally believed that Buck's surveys and others tended to overrepresent more prosperous households. Adjusting Buck's estimates downward to 2100-2300 calories per day, it would nevertheless appear by Piazza's computations that national caloric availability per capita would not have clearly exceeded the earlier period's until after 1978. Even then, overall margins of improvement are uncertain, since patterns of both industrial demand for foodstuffs for non-food use and patterns of loss and wastage within the food economy may have changed since pre-Revolutionary days. What these figures seem to emphasize is that China's recent and rapid improvements in health and life expectancy were achieved on a level of national food availability which may have been lower than the pre-revolutionary norm.

Broadbased improvements in health conditions of the kind which modern China has experienced would be virtually impossible to achieve without increasing the nutritional security of the more vulnerable strata within the nation. When overall caloric availability is comparatively low, and increasing only slowly or irregularly, nutritional advance must be principally a matter of narrowing differentials in consumption within society, and, perhaps more importantly, of establishing minimum consumption guarantees. China's rising expectation of life at birth would seem to speak to the effectiveness of such minimum guarantees, although in practice these are known to vary widely from one region to the next.[78] Even so, modern China remains a nation of marked disparities in estimated caloric availability per capita, as Table 7 suggests. In 1980, by Piazza's calculations, overall per capita caloric availability was scarcely half as great in Inner Mongolia as in the Manchurian province of

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[75] Cited in Lardy, *Agriculture in China's Modern Economic Development*, *loc. cit.*

[76] John Lossing Buck, *Land Utilization In China* (Chicago: University Of Chicago Press, 1937).

[77] See Herbert Day Lamson, *Social Pathology In China* (Shanghai: The Commercial Press Limited, 1935).

[78] See Kenneth W. Walker, *Food Grain Procurement And Consumption In China* (New York: Cambridge University Press, 1984).

Heilongjiang. Piazza's figures do not adjust for interprovincial differences in either age structure or industrial demand for foodstuffs for non-food use, two factors which might narrow these ostensible inequalities. Actual differences in availability may also be overstated to some extent because these estimates do not adjust for interprovincial transfers of food. That trade, however, accounted for only a small fraction (barely 1%) of foodgrain output in the late 1970s.[79] Directives since that time have aimed at freezing interprovincial transfers at these (historically speaking) extremely low levels.[80] For all these reservations, then, regional inequalities in per capita caloric availability at the provincial level would nevertheless seem unmistakeably pronounced in modern China.

Table 8 puts these geographic disparities in international perspective. No less striking than modern China's regional caloric disparities is its pattern of nutritional differences between urban and rural areas. According to the State Statistical Bureau, average caloric availability per capita was 18% higher in cities than in the countryside for the years 1979 and 1980. In India, Indonesia, and Brazil, per capita caloric consumption was estimated to be 4 to 12 percent lower in cities than in the countryside in different surveys conducted during the 1970s. (In those three societies, and in other low income nations, the tendency for rural caloric consumption to exceed urban consumption speaks not to deprivation in the cities—life expectancy is typically higher in the urban areas—but at least in part to the higher caloric requirements of an active rural life.[81]) Part of the difference in urban-rural caloric availability patterns between China and other low income nations may be explained by the differences in age composition between urban and rural areas in China. Due in part to governmental migration and fertility control policies, China's cities have a markedly lower fraction of children under fifteen years of age in total population (26%) than do villages (35%)[82]—a disparity wider than those found in other low income nations, and one which would tend to raise average per capita nutritional requirements for urban areas. In the recent past, China's extensive rural health care system may also have lowered rural caloric needs by reducing the prevalence and extent of caloric malabsorbtion due to infectious or parasitic disease.[83] Adjusting for such factors, however, would not appear to account fully for the difference in urban-rural caloric availability patterns between modern China and other low income nations. That pattern of preference for the cities is not only distinct from consumption patterns of other nations, but also distinct from China's own pattern in the past. Fragmentary survey results from the pre-revolutionary period suggest that average caloric consumption was higher in rural than in urban areas during the Republican era.[84] Per capita grain consumption also appears to have been higher in rural areas than in urban areas in China during the First Five Year Plan.[85] The distinct, new pattern in China apparently did not emerge until after the Great Leap Forward.[86]

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[79] *Agriculture In China's Modern Economic Development*, loc. cit.

[80] "Agricultural Prices In China", loc. cit.

[81] See, for example, Food And Agriculture Organization, *Review Of Food Consumption Surveys 1977* (Rome: FAO, 1979). See also Nick Eberstadt and Clifford M. Lewis, "Food Security" (Washington: International Bank For Reconstruction And Development, unpublished paper, 1982).

[82] Wu Cangping, "Characteristics of Age Composition of China's Population", *Renkou Yanjiu* No. 4, 1984, translated in JPRS, CPS-84-077, November 20, 1984.

[83] On this phenomenon, see John Briscoe, "The Quantitative Effect of Infection on the Use of Food by Young Children In Poor Countries," *American Journal of Clinical Nutrition*, March 1979.

If the gap in food availability between urban and rural areas in contemporary China seems unusually large, the quality of the overall diet seems unusually low. This can be seen in Table 9. By Piazza's estimate, national per capita caloric availability in China rose by almost a third between 1952 and 1981, or by over six hundred calories per person per day. Over this same period there is estimated to have been very little change in the composition of the Chinese diet. In 1952, China derived about seven eighths of its available calories from "grains"—cereals, starchy root crops, and pulses. This fraction is similar to the fraction derived from similar low-cost calories sources in the extremely poor populations listed together as "Group 3" in Table 9. By 1979–81, when China's national per capita caloric availability was estimated to be similar to that of the overseas Chinese populations in "Group 1", its dietary composition remained much as it had been in earlier periods. China's estimated composition of caloric output is also noticeably different today from those countries listed in "Group 2", all of which have estimated life expectancies similar to China's.

Like the wish for good health, the preference for a tasty and diversified diet appears to be virtually universal. Surveys since the nineteenth century have consistently revealed a tendency on the part of consumers to opt for higher-cost, higher-quality foodstuffs (fruits, meats, sugars, oils, leafy vegetables) at higher levels of income or caloric satiation, irrespective of nationality, culture, or social class.[87] It is noteworthy that China's dietary composition seems to have conformed to patterns dictated in other nations by extreme poverty or lack of purchasing power at a time when overall national caloric availability per capita is estimated to have risen significantly. The inflexibility of dietary composition in the early years of the "period of readjustment"—the seeming resistance of output patterns to patterns of consumer taste as witnessed in other Chinese populations—would seem to testify to the limited impact of the "market mechanism" in the Chinese food economy today, even after the advent of the "production responsibility system".

"Bennett's Law"—the tendency for higher quality foods to replace starchy staples at higher levels of caloric consumption[88] seems to have been suspended, or at least highly qualified, in modern China. "Engel's Law"—the tendency for expenditures on food to account for a smaller fraction of the household budget at higher levels of affluence—may by contrast still be in effect, since this is a preference revealed directly by the behavior of individual households. As can be seen from Table 10, China's city people today seem to devote about the same fraction of their measured incomes to food expenditures as the urban residents of India in the mid-1970s or the city people in Indonesia in the late 1970s. Urban China's "Engel coefficient" is significantly higher than was Hong Kong's in the early 1960s, even though Hong Kong then and urban China today would appear to be at roughly similar levels of life expectancy. Comparisons of Engel coefficients between urban areas in China and other nations, however, are compromised by a number of factors, not the least of which are the hidden subsidies which do so much to shape actual consumption patterns in China's cities.[89] The Engel coefficient may be somewhat more meaningful measure in the Chinese countryside, where the role of state subsidy in local consumption is more limited. For 1982, survey results indicated that about three fifths of China's peasant households' expenditures were devoted to food, although the fraction varied noticeably between more affluent and more impoverished provinces. (Since Chinese survey techniques appear to underrepresent poorer households, we may wish to treat the figures produced in these expenditure studies as a lower boundary for the actual Engel coefficient for these regions, and for the nation as a whole.) For China's agricultural population as a whole, the Engel coefficient for 1982 was estimated to be similar to that of Pakistan's rural population for the early 1970s; for certain provinces, it was estimated to be closer to that of rural Indonesia in 1978, or rural India for 1964/65.

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[84] See Lamson, *loc. cit.*

[85] See *Agriculture In China's Modern Economic Development, loc. cit.*

[86] *Ibid.*

[87] For a recent discussion of these patterns, see C. Peter Timmer, Walter P. Falcon, and Scott R. Pearson, *Food Policy Analysis* (Baltimore: Johns Hopkins University Press, 1983). For a classic discussion, see H.S. Houthakker, "An International Comparison Household Expenditure Patterns, Commemorating the Centenary of Engel's Law" *Econometrica*, October 1957.

[88] See Merrill K. Bennett, *The World's Food* (New York: Arno Press, 1976).

Judged by their health levels, the Chinese people would be predicted to live in modest comfort (or, in the case of the cities, perhaps even in an environment approaching mass affluence). Judged by available statistics on their consumption patterns for food, China's people might be expected to live in poverty—possibly in extreme poverty. The contradiction speaks to the extent to which nutritional patterns in contemporary China have been separated from consumer preference. This contradiction, in some sense, may be said to represent a policy success, since the isolation of consumer preference from economic results is one of the objectives of central economic planning.

In physical terms, the nutritional results of China's food policies are represented in Tables 11 and 12. These provide estimates, respectively, for mortality of children aged 1 to 4—a cohort thought to be particularly sensitive to nutritional setback[90]—and of heights and weights for children between the ages of 7 and 16.

China's estimated child death rate appears to have fallen dramatically between 1957 and 1975, and to have fallen further by 1981, although at a much slower pace. By this singularly important measure, China would appear to have made substantial progress in controlling and reducing the worst effects of malnutrition on its population. At the same time, anthropometric data indicate that significant nutrition-related differences separate the populations of prosperous and less prosperous provinces, to say nothing of rural areas and the cities. By the criteria of height and weight differences among children, nutritional inequalities between regions appear to be similar in China today and the Brazil of the mid-1970s. Intraprovincial differences in the height and weight of children may be greater in China than the disparities between the most prosperous and the latest prosperous areas of South Korea. These anthropometric differences indicate areas of nutritional and health disadvantage within China, and thus priority areas for nutritional improvements in the future.

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[89] Interestingly, the measured ratio of household expenditures on food to disposable income has been rising steadily in China's urban areas in recent years. In 1981, the "Engel coefficient" for urban working families was put at 56.7%, in 1983, it was estimated to be 59.2%. See *China's Statistical Abstracts*, July 1984, translated in JPRS, CEA-84-103, December 18, 1984. That the "Engel coefficient" should rise during a period of ostensible increase in real per capita income is a measure of the extent of the disequilibrium in consumer markets in urban regions of China.

[90] See J.E. Gordon *et. al.*, "The Second Year Death Rate for Less Developed Countries," *American Journal of Medical Science*, September 1967.

IV. LITERACY

Attaining literacy does not in and of itself protect an individual against the risks of poverty, but command of reading and writing skills can be used to reduce systematically the risk of suffering from material deprivation.[91] By placing the world of written knowledge at the disposal of an individual or household, literacy can increase both productivity and security for those who are willing to use it to do so. In the modern world, education and literacy bear strong positive association with earnings,[92] strong negative association with infant mortality,[93] and seems to increase the ability of households to cushion themselves against adverse fortune in times of hardship.[94]

Literacy has no fixed definition. It is a functional concept, and its requirements thus depend upon the society, the occupation, and the era. In China, where the writing system is not phonetic, the definition of literacy becomes particularly problematic. Full mastery of the Chinese calligraphic system was commonly said to require twenty years' study for the literati in the days of the imperial examinations, yet intensive training courses sponsored by the "Mass Education" reformers in the early twentieth century could provide a knowledge of Chinese writing sufficient for the basic demands of village life in four to six weeks.[95] Educational reformers in Republican China set the standard for functional peasant literacy at recognition of about 1200 characters;[96] Communist Chinese authorities set the standard for peasants at 1500 characters ("enough to read simple publications, to keep accounts, and to write informal notes") and at 2000 characters for workers.[97] Chinese authorities distinguish between "illiterates" and "semi-literates" in accordance with the number of characters they can command.[98] At the same time, China's educational tabulations place "illiterates" and "semi-literates" together in a single category—perhaps not an unreasonable classification, considering the limitations of "semi-literacy" in a non-phonetic system.

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[91] For a fuller discussion, see John Oxenham, *Literacy: Writing, Reading And Social Organization* (London: Routledge & Kegan Paul Ltd., 1980).

[92] George Psacharopoulos, *Returns To Education: An International Comparison* (San Francisco: Jossey-Bass Publishing Company, 1973).

[93] See, for example, Susan H. Cochrane, *The Effects Of Education On Health (Washington: IBRD, 1980)* See also J.C. Caldwell. "Education as a Factor of Mortality, Decline: An Examination of Nigerian Data" *Population Studies*, November 1979.

[94] For evidence on these matters, see Paul R. Greenough, *Prosperity And Misery In Modern Bengal* (New York: Oxford University Press, 1982), and Amartya K. Sen, *Poverty And Famines* (New York: Oxford University Press, 1981).

[95] Evelyn S. Rawski, *Education And Popular Literacy In Ch'ing China* (Ann Arbor: University of Michigan Press, 1979).

[96] *Social Pathology In China, loc. cit.*

[97] *Xinhua*, October 4, 1982, translated in JPRS, No. 82226, November 16, 1982.

At least as much as with reducing disease or malnutrition, direct governmental interventions have an instrumental role in reducing illiteracy. Communist China has made well-noted efforts to eliminate illiteracy, both through expansion of primary schooling and promulgation of adult education campaigns.[99] The results of these efforts are reflected in the 1964 and 1982 censuses, both of which included questions on literacy. Table 13 presents these data. (The findings are presented in terms of the estimated extent of illiteracy, since its shadings may be fewer in the Chinese context, and its pertinence to poverty is more direct.)

Changes in the estimated incidence of adult illiteracy and semi-literacy in China are contrasted with changes in estimated rates of illiteracy in other regions in Table 13. These comparisons must be approached with special care, since definitions of and standards for literacy vary so widely among the nations surveyed. Hong Kong, for example, treats anyone with formal education as literate; Singapore requires the respondent to write a specified sentence; India simply asks its adults if they can read.

The overseas Chinese populations began the 1950s with significantly lower rates of illiteracy than the Chinese Mainland, and seem to have kept them significantly lower. India's illiteracy rate may have been somewhat higher than China's in the early 1950s, but it appears to be dramatically higher today. On the other hand, it is not clear that China's performance in reducing illiteracy is superior to Indonesia's. For comparable age groupings (i.e., adults over 15 years of age), China's measured rate of illiteracy and semi-literacy in 1982 was higher than Indonesia's measured rate of illiteracy for 1980 (35% vs. 32%). Though data on literacy and schooling in Indonesia are spotty before 1961, it appears that before 1949 non-enrollment and illiteracy were at least as prevalent in Indonesia as in China.[100] Japan, on the other hand, had virtually eliminated adult illiteracy by 1949, and while adult illiteracy is thought to be a continuing problem in the USSR, especially among its populations of Muslim descent, the peculiarities of Soviet presentations of information of education qualification and illiteracy reduce the information which foreign analysts may draw from them and limit their comparability against data from other nations.[101]

There are substantial regional variations in illiteracy in China today, as can be seen in Table 14. In general, these variations are consistent with measured regional disparities in health and nutrition. Estimated rates of illiteracy and semiliteracy are almost twenty points higher in rural than in urban areas. This disparity is wider than the corresponding differences in Peninsular Malaysia, Taiwan, South Korea, or Sri Lanka, but it is about the same as in Indonesia, is somewhat narrower than in Brazil, and is noticeably narrower than in India. China's interprovincial differences in literacy, however, seem exceptionally wide. In 1982, Liaoning and Tibet were separated by a gap of almost sixty points. In India, a nation often cited for its regional disparities in educational attainment, the difference between the highest and lowest illiteracy rate among its states in 1971 was more than ten points less than this.

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[98] Juergen Henze, "Alphabetisierung in China", in the German journal *Bildung Und Erziehung*, September 1983.

[99] International Bank For Reconstruction And Development, *China: Socialist Economic Development* (Washington: IBRD, 1983), Volume III.

[100] For available data, see Republic of Indonesia, *Development Of Education In Indonesia 1957* (Jakarta: Ministry of Education, 1957), and Department van Ekonomishe Zaken, *Onderwijsstatistiek Over Het Schooljaar 1938-1939* (Batavia: August 1941).

[101] On this score, see *Rosemarie Crisostomo, "Soviet Education And Language Policy In the USSR's Southern Tier,"* US Bureau of the Census, Center for International Research (forthcoming).

To some extent, any government intent upon reducing illiteracy is hostage to the past. Adult illiterates are typically resistant to the transition to a lifestyle shaped by the written word, and require constant reinforcements if the change is to hold.[102] China may have been no more successful with its adult illiterates than other low income nations. According to the 1982 census, the rate of illiteracy and semiliteracy for people then over 55 (i.e., 22 years old or older in 1949) was above 75%—not too different, perhaps, from the national level of the prerevolutionary period.

China's record in inculcating literacy in cohorts which grew up under the revolutionary order is shown in Table 15. Among those who were of the proper age for primary schooling after 1949, the measured rate of illiteracy or semiliteracy is put at 19%. This would be far lower than India's estimated rate of illiteracy for younger adults in 1971. China's 1982 rate of illiteracy and semiliteracy for teenagers (15 to 19) was similar to Indonesia's illiteracy rate for 1980 (9% vs. 13%). Its rate for people in their twenties was close to Brazil's estimated illiteracy rates for the same age cohort in 1978 (17% vs. 15%). China's national rate for younger people, however, conceals dramatic regional disparities. In such places as Beijing and Liaoning, illiteracy and semiliteracy for younger adults seem close to being eliminated, while in Tibet the measured incidence of illiteracy and semiliteracy was placed at 65%. In Guizhou, a poor province but one which unlike Tibet is overwhelmingly Han Chinese in ethnicity, illiteracy and semiliteracy among the younger adult population is put at 38%—twice the national average.

Further reductions of illiteracy and semiliteracy rates in China will depend largely on the education of rising generations. As Table 16 shows, the net enrollment ratio for primary schooling in China in 1981 was put at about 93%. On its face, this would seem to indicate a much greater access to primary school for Chinese than for Indian children. It would be a rate of access similar to that of Indonesia and somewhat below that of other East Asian nations. A net enrollment ratio of 93% would indicate that 7% of those children of the age group for which primary schooling is designated (in China, the years 7 through 11) are not enrolled. Nonattendance, however, is a problem above and beyond non-enrollment. In rural areas of Beijing municipality, for example, the average attendance rate for primary schools was reported to be 75% in the early 1980s.[103] Attendance rates may well have been lower in less developed rural locales. Unfortunately, there are no reliable data on school attendance rates for either China as a whole, or many of the nations against which we might wish to compare her.

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[102] *Literacy: Writing, Reading, and Social Organisation, loc. cit.*

Ultimately, a cohort's literacy rate may be either higher or lower than its primary school net enrollment ratio, depending (among other things) on the quality of education provided, the correspondence between enrollment and attendance, the economic returns and social advantages to attaining literacy, and the rythyms and requirements of daily life in the milieu where education may be taking place. It is perhaps significant, however, that China's net primary school enrollment ratio is reported to have fallen since the beginning of the "period of readjustment". In 1977 and 1978, according to Chinese reports, net primary school enrollment ratios were over 95%.[104] By 1981, the rate was put at 93%.[105] It was said to remain at 93% in 1982.[106] In 1983 it was reported to have risen, but only to 94%—a level lower than reported six years earlier.[107]

The reasons for this decline—which has been widely discussed not only in Chinese educational journals but also in the Chinese press—may differ among the various localities for which this has emerged as a problem. By all accounts, however, it appears to be a rural rather than a strictly national problem, and while it undoubtedly reflects ongoing official efforts to raise local educational standards, it seems partly to be related to the transition to a "production responsibility system" in the countryside. Some reports, for example, suggest that the "production responsibility system", in increasing the value to the household of family members' labor, has prompted some parents to withdraw their children from the classroom and place them in the field.[108] Others have suggested that changes in the system of financing primary schooling have brought new, heretofore unfelt, pressures on poorer households, and that some parents have responded by selective non-enrollment of their children.[109] Still others have noted, that with the decline of the work-point system, school teachers in some places are now responsible for growing their own food, and do so during class hours.[110] It may also be that education policies at the national level have put pressure on primary enrollment at the local level. Higher education in China is an extremely expensive proposition by any comparative measure: the cost for a year of schooling at the tertiary level is estimated to be over seventy times higher than at the primary level.[111] Tertiary education, as of 1979, is estimated to have cost China almost as much as primary education, even though it accounted for only about one percent of China's total student population.[112] The Sixth Five Year Plan envisions a dramatic expansion in tertiary enrollment; university enrollment, in the meantime, had increased by almost half between 1978 and 1981. In the context of an education budget with growing but nonetheless limited resources, China's policymakers may percieve a conflict between the objective of universalizing primary schooling and the objective of technical and scientific modernization.[113] Whatever its causes, the apparent drop in net primary school enrollment ratios since the Third Plenum in 1978 would seem to suggest that China's new development policies cannot automatically be assumed to accelerate the pace at which China heads toward the eventual elimination of national illiteracy.

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[103] *Renmin Jiaoyu*, No. 2, 1981, cited in Billie L.C. Lo, "Primary Education: A Two-Track System For Dual Tasks", in Ruth Hayhoe, ed., *Contemporary Chinese Education* (London: Croom Helm, Ltd., 1984).

[104] Cited in Jan-Ingvar Loefstedt, *Chinese Educational Policy* (Stockholm: Almqvist and Wiksell, 1980).

[105] "Education In China", in Xue Muqiao, ed., *Almanac Of China's Economy, 1981* (Hong Kong: Modern Cultural Company, Ltd., 1982).

[106] "Education In China", in Xue Muqiao, ed., *Almanac Of China's Economy, 1983* (Hong Kong: Modern Cultural Company, Ltd., 1984).

[107] *Xinhua*, September 17, 1984, translated in JPRS, CPS-84-067, October 12, 1984.

[108] Rong Siping, "Why Do Communes, Production Brigades, And Teams Get Rich While Elementary Schools Fall Into Disrepair?" *Wenhui Bao*, July 4, 1982, translated in *Chinese Education*, Fall 1984.

[109] Yi Mu, "Attention Must Be Paid To Rural Students Who Unlawfully Leave School" *Shanxi Ribao*, October 26, 1982, translated in JPRS, No. 82440, December 10, 1982.

[110] See, for example, Liaoning Provincial Broadcast Service, November 27, 1982, translated in JPRS, No. 82540, December 27, 1982.

V. STATUS OF WOMEN

Discrimination against women figures prominently in the patterns of poverty in many low income societies. Both social custom and legal norm in various nations consign women to a life in which social opportunity and economic reward are systematically restricted and diminished. In many regions, moreover, it is the accepted lot of women to shoulder a disproportionate fraction of society's harsh physical toil, and to live without many of the protections men might expect against physical abuse. Discrimination against women means that the incidence of material poverty within any given society can be considerably higher for its women than its men. For future generations, discrimination against women can serve as a transmission belt for poverty, since a mother's health and education directly affect the life chances of her childlren.

Analysis of the role of women in contemporary Chinese society is beyond the scope of this paper. It will suffice here to present some of the recent data pertaining to the differential physical impact of poverty on men and women in China, and to set these differences in international perspective.

Differentials in literacy, important in and of themselves, may also speak to differences in productive capabilities, social opportunities, and physical security in times of hardship. According to the 1982 census, the difference between male and female rates of illiteracy and semiliteracy was 26 points for adults over age 12 (see Table 17). In absolute terms, the spread between female and male illiteracy and semiliteracy in China would appear to be the largest in East Asia. It would also seem that the difference in literacy rates between men and women in China is unusually great for a nation at China's estimated level of overall adult literacy. Substantial differences in male and female literacy, of course, are characteristic of Asia's Muslim societies, but it is interesting to note that, in absolute terms, the measured gap for China's population over the age 15 appears to be greater than in Bangladesh (where the measured gap in 1974 was 24 points), Iran (1976: 24 points), Bahrain (1981: 23 points), Saudi Arabia (1980: 22 points), or Pakistan (1981: 21 points)—though it may be slightly lower than in Jordan in 1979 or Turkey in 1980, were the gaps were estimated at 30 points.[114]

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[111] Han Zongli, "An Inquiry Into The Investment In Universalizing Primary Education", *Jiaoyu Yanjiu*, No. 12, 1983, translated in *Chinese Education*, Fall 1984.

[112] *China: Socialist Economic Development*, *loc.cit.*, volume III.

[113] See, for example, "An Inquiry Into The Investment In Universalizing Primary Education", *op. cit.*

Enrollment ratios for primary schooling shape the literacy rates of the future. China's estimated gross enrollment ratios for boys and girls are presented in Table 18. Again, the absolute gap in China appears to be unusually large, being exceeded only by India's in the sample of nations in Table 18. No other East Asian nation has nearly so large a disparity in gross enrollment ratios at the primary level between boys and girls. While the estimated absolute difference in China's rates is lower than for a number of contemporary Asian Islamic societies (Oman, Iran, and the two Yemens among them) it is considerably greater than for some others, including Turkey, Jordan, Syria, Bahrain, Kuwait, and Iraq. In societies with expanding primary school systems or rising levels of general educational attainment, the gap between male and female enrollment rations typically narrows. In China, the disparity appears by contrast to have widen noticeably in recent years. In 1979 male gross primary enrollment ratio was 20 points higher than that estimated for women.[115] By 1982—the latest year for which UNESCO has made computations—the disparity was put at 25 points. Such numbers suggest that social and economic changes in China since the Third Plenum in 1978 have widened the gap in basic educational opportunities between boys and girls, although it is not possible to tell from these data whether girls have born a disproportionate share of the decrease in net primary enrollment.

Data on the distribution of food within the household are scarce for any society, and are not to be had as yet for China.[116] Even so, the death rate for children aged 1-4 may provide some insight into the difference in nutritional odds facing boys and girls. Table 19 presents the ratio of female to male mortality for children aged 1-4 in the People's Republic of China and elsewhere.

China's data on death rates for boys and girls are taken from vital registration sources for 1957 and 1975, and from the recently released life table for 1981. Though it is believed that underestimation of deaths affects all of these figures, it is not evident that they should be affected by differing rates of underregistration for boys and girls. Even so, figures based on incomplete coverage must always be treated with caution. We may note that death rates for female children appear to have been higher than for male children in modern China in each of the periods for which we have data. The disparity between death rates for girls and boys does not appear to have narrowed between the late 1950s and the early

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[114] UNESCO, *Statistical Yearbook 1984* (Paris: UNESCO, 1984).

[115] *Ibid.*

[116] For a first effort in this direction, see Elisabeth J. Croll, *The Family Rice Bowl* (London: Zed Press, 1982).

1980s, despite improving levels of national health; the gap, in fact, may have widened since the mid-1970s.[117]

China's patterns appears to be in marked contrast with those of other Chinese populations. In those other societies, there has been a tendency for the disparity in death rates between female and male children to diminish as overall mortality decreases, and for female mortality in the 1-4 age group to slip below that of males. The ratio of female to male child deaths appears to be significantly higher in China today than in Taiwan, Hong Kong, Singapore, or Peninsular Malaysia when they were at China's present estimated level of life expectancy. China's pattern appears to be closer to Sri Lanka's, a society where, despite overall health improvements, death rates for female children continue to be high in comparison to those for male children. In the Sri Lankan case, preferential care for sons and selective neglect of daughters is often said to account for this continuing and unusual disparity.[118]

Chinese authorities believe that discrimination against women has been intensifying in the period since the "historic Third Plenary Session" in 1978. In a televised address to a national audience in early 1984, Zou Yu, Justice Minister for the People's Republic, flatly stated that "discrimination against women and incidents of humiliation, mistreatment, and injury to women and children have been on the rise in the last few years.[119] The theoretical and ideological journal of the Communist Party of China, *Red Flag,* had noted a few months earlier that investigations had revealed that "in some rural brigades the malpractice of killing and abandoning female babies has been so serious that the ratio of female babies to male babies has already dropped to 1:4 or 1:5." [120] That general problem has evidently not yet been resolved in at least some regions of China, for as recently as late 1984, an "Announcement from the Standing Committee of the 6th Shaanxi Provincial People's Congress" included the stipulation that" drowning or abandoning infants and other activities to cruelly injure or kill infants are prohibited". Although little has appeared in the Chinese press or in Chinese research journals on differential disadvantages for women in education, China's leading sociologist, Fei Xiaotong, recently stated in the pages of the *People's Daily* that "(in the countryside) the number of 'drifting students' is continuously increasing" and warned "of the appearance of new illiteracy" [121]—this at much the same time that educational statistics supplied to UNESCO were revealing a widening gap in gross primary school enrollment ratios between boys and girls.

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[117] Ansley Coale's reconstructions of Chinese mortality patterns in the post-Liberation period are consistent with an interpretation that sees rising differentials in death rates for girls versus boys in the cohort of children aged 1 to 4. By Coales calculations, the ratio of female to male mortality for the 1-4s was 1.10 for the period from 1953 to 1964; for the period from 1964 to 1982, by his estimate, the differential had increased to 1.14. See *Rapid Population Change In China, 1952-1982, loc. cit.*

[118] But on this argument, see T. Nadarajah, "The Transition From Higher Female To Higher Male Mortality In Sri Lanka", *Population And Development Review,* June 1983.

[119] "Resolute Protection of Women and Children's Legitimate Rights", January 16, 1984, translated in JPRS, CPS 84-031, April 24, 1984.

[120] "Overcome The Outworn Prejudice That Men Are Superior To Women", *Hongqi, No. 5, 1983, translated in JPRS, No. 83318,* April 22, 1983.

[121] Fei Xiaotong, "Close Attention Should Be Paid To The Development Of Cultural Resources", *Renmin Ribao,* June 25, 1983, translated in JPRS, No. 83966, July 25, 1983.

It is clear enough that the proximate medium for the physical sorts of discrimination against women outlined in this paper is the family. It is parents who choose to enroll their children in school or to withdraw them from it, just as it is parents who are responsible for the incidents of "drowning or abondoning baby girls" that have been decried in the Chinese press. It is husbands and in-laws who do the "hounding to death of women" that has been condemned in the Chinese Communist Party's official and theoretical journal. It is usually the case with social problems, however, that proximate causes are easier to identify than underlying causes and motivating factors. The impact of the "production responsibility system", the population control program, and other specific manifestations of government policy since the Third Plenum of 1978 on family relations in rural China is a subject which is only just beginning to be investigated.[122] It may be premature to posit a conclusive link between China's "new development strategy" and increasing physical discrimination against women. Physical discrimination against women is not unique to China; to the contrary, it shows up in the statistics of many low-income nations.[123] What is noteworthy about recent events in China, however, is that a generalized increase in economic activity, a substantial increase in measured economic output per capita, and ostensibly broadbased increases in personal consumption—all changes which would typically be taken to indicate increasing national prosperity—have coincided with a measureable and significant rise in physical manifestations of severe discrimination against the female population.

VI. Concluding Remarks

Great transformation in material living conditions have taken place on the Chinese Mainland since the victory of Communist forces in 1949. The Marxist-Leninist party which assumed command of Chinese society at the time of the Liberation claimed to have special insight into the problem of mass poverty, and constructed an eleaborate and far-reaching administrative apparatus, reaching directly into the Chinese household and affecting its most basic decisions, in the name of benefitting the poor. The policies implemented by this apparatus, and engineered by this party, have been characterized by a number of important and fundamental changes over the past three and a half decades; not a few of these have been radical reversals of directives and direction previously embraced. An overall record of performance against manifestations of material poverty has emerged for these years.

Assessment of this record depends strongly upon what one chooses to emphasize. The assessment of material welfare is, after all, in no small degree a philosophical and ideological question, whether or not it is treated as such explicitly. There is no empirical basis by which one may decide whether short-run or long-run implications of policies are more important, even though these can and often do differ in important ways. By the same token, there is no foreordained answer to the question of whether "individual rights" or the radically different conception of "peoples' rights" provides the more satisfactory standard by which to measure human well-being. Rather than issue judgments on the appropriate vision of individual, society, and virtue—for it is differing perspectives on these three issues which account for so much of the variety in assessments of social performance in any given situation—it may be more useful to conclude with some observations about the distinctive characteristics of material poverty in modern China, and some speculations about the prospects for further and continued alleviation of China's material deprivations.

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[122] See, for example, *The Family Rice Bowl, loc. cit.*, and Margery Wolf, *Revolution Postponed: Women In Contemporary China* (Stanford: Stanford University Press, 1984). In a slightly different vein, see Marlyn Dalismer and Laurie Nisonoff, "The New Economic Readjustment Policies: Implications for Chinese Urban Working Women", *Review Of Radical Political Economy*, Spring 1984.

[123] "See, for example, Jocelyn Kynch and Amartya Sen, "Indian Women: Well-Being And Survival", *Cambridge Journal of Economics*, September/December 1983; see Ester Boserup, *Women's Role In Economic Development* (New York: St. Martin's Press, 1970), for a more generalized argument about the status of women in the course of "modernization".

When placed in international or historical perspective, Communist China's performance in alleviating material poverty, and its current patterns of material deprivation, presents the observer with a number of seeming paradoxes and contradictions. In three and a half decades of planned socialist development, for example, China has reached a level of national life expectancy enjoyed by few other low income nations, but in the course of this ascent appears to have experienced catastrophic loss of life from famine and nutrition-related diseases. While China's current per capita caloric availability and mortality level appear to be similar to those of nations where caloric satiation (as reflected by consumer behavior) has been generally achieved, China's pattern of food output and its patterns of consumer behavior are more characteristic of nations where caloric satiation remains an unresolved problem. Though the demand for education, both as an investment and a consumer good, tends to rise with individual and national income, educational enrollment at the primary level has evidently fallen in China since the surge in national income that began in 1978. And whereas social and economic development typically reduce the mortality disadvantage of both the rural and the female fractions of any national population, modern China sees striking differences in lifespans between city and countryside, and (at least for certain age cohorts) between women and men; these gaps may actually have increased in recent years or decades.

These discrepancies between modern China's patterns of poverty and those witnessed elsewhere in the world are explained best not in terms of culture or history, but rather in terms of the policy tools chosen and developed by the Chinese government. In modern China, social and economic change have been directed by a command planning system. The purpose of command planning, in an operational sense, is to divorce economic and social results from the preferences of individuals. China's patterns of poverty reflect this separation. Intermittent experimentation with "decentralization" notwithstanding, the distinctiveness of patterns of poverty in modern China is testimony to the success of the Chinese command planning apparatus in superimposing state-designated "social preferences" over the ordinary preferences of individual consumers and producers in the determination of economic and social outcomes.

Because successful implementation of command planning divorces economic and social results from those results which would be expected if individual economic factors were allowed to move toward what they would perceive as the maximization of their welfare, social and economic conditions in Communist China are exceedingly difficult to forecast. If command planning can free a nation from the confines of historical "patterns of development", it will simultaneously make the fate of the poor a less predictable matter, for predictions are based in large part on the pool of historical experience that is taken to be generalizeable.

If prospects for alleviating poverty in China are in some sense intrinsically less predictable than in other low income nations, there are nevertheless important indications for the future which may be taken form the recent past. One of these concerns the sustainability of Mao-era strategies credited with the alleviation of material poverty.

Apart from the redistribution of existing wealth (which may have a profound and immediate impact on the lives of the poor), or foreign assistance, reduction of national poverty must be financed by generalized and sustained increases in income and output, and hence on improvements in productivity. Whatever else the Communist government may have accomplished in its first three decades of power in China, it found no solution to the problem of regularizing productivity increase. Measurement of productivity change, to be sure, is not a straightforward affair, even under the best of circumstances.[124] Excercises in "growth accounting" for China are further complicated by the fact that output and economic "inputs" in the PRC are valued by prices which give primacy to political decisions, not articulated demand or market scarcity. Inexactitudes notwithstanding, several analysts have attempted to trace patterns of productivity in the modern Chinese economy; their findings are all broadly consistent. Tang, for example, used rough computations to estimate that total factor productivity in Chinese agriculture dropped by fifteen percent or more between 1952 and 1977.[125] Dernberger has suggested that total factor productivity in Chinese industry may have dropped by over 30 percent between 1952 and 1979.[126] In perhaps the most comprehensive of such exercises to date, Yeh has calculated that total factor productivity for the Chinese economy as a whole fell on average by one and a half percent a year between 1957 and 1978, implying that overall efficiency of resource used declined by over twenty five percent during this period.[127]

If such calculations are even roughly accurate, modern China's pattern of development was indeed distinctive. Of all nations for which such computations have been attempted, no other economy, be it market-oriented or centrally planned, has been thought to suffer such a profound, and secular, erosion of productivity.[128] It would appear from such calculations that economic growth in China, from the early 1950s until the Third Plenary Session of the Eleventh Central Committee in 1978, depended exclusively on the mobilization of additional factors of production (augmentation of investment, expansion of the workforce and the lengthening of the workday)—and that even so, increments in output did not match the increments in resources mobilized for growth. China's economy was set on a precarious trajectory during those years: it would approach overall stagnation as it approached full mobilization of social resources. Such an economic framework would appear to be manifestly unsustainable; yet it was within this framework that revolutionary China's achievements against poverty were scored, and upon this framework that the anti-poverty strategy of the Mao era ultimately relied.

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[124] The problem is perceptively discussed in Mark Blaug, *Economic Theory In Retrospect* (New York: Richard D. Irwin, Inc., 1962).

[125] Anthony M. Tang and Bruce Stone, *Food Production In The People's Republic Of China* (Washington: International Food Policy Research Institute, May 1980)

[126] Robert F. Dernberger, "Communist China's Industrial Policies: Goals And Results" in the Taiwanese Journal *Issues and Studies*, July 1981.

[127] K.C. Yeh, "Macroeconomic Changes In The Chinese Economy During the Readjustment", *China Quarterly*, December 1984.

If China's current leadership believes there is scope for increasing the efficiency of resource use on China today, it would seem hard to disagree with their assessment. Tables 20 and 21 may provide some perspective on the challenge that faces them as they attempt to move the Chinese economy in a "new direction". It is often said that modern China's levels of health and literacy are unusually high for its level of national income, yet the inescapable converse of this observation is that China's level of national income is unusually low for its given level of "human resources". Even allowing for the perhaps considerable errors and distortions contained or concealed in the figures in Tables 20 and 21,[129] it would appear that economic and social arrangements in other less developed countries have made it possible for other societies to register substantially higher levels of per capita product than those achieved in China on seemingly comparable "human capital" bases.

At present, China's leadership seems to believe that improvements in living standards must be linked more closely with improvements in productivity. Improvements in productivity, however, may be more difficult to regularize than the current leadership may anticipate. Recent efforts to recast China's economic policies do appear to have had a positive impact on overall efficiency; by Yeh's estimate, total factor productivity increased in China by about one percent a year between 1979 and 1982.[130] Though this would represent a distinct improvement on earlier performance, such a rate of productivity progress would appear quite modest, not only in the context of other East Asian economies,[131] but even in comparison with the Soviet economy's overall postwar record.[132] Further improvements in economic efficiency in China will depend not only on technological transfer and allocative efficiency—both of which fall within the jurisdiction of China's planners—but also on what Leibenstein has called "X-efficiency",[133] which concerns motivation, incentive, and other aspects of "microeconomic" performance. If "X-efficiency" is related to household purchasing power, improvements in "X-efficiency" would seem to be directly related to changes in the mechanisms by which consumer goods are produced, distributed, and priced—and thus to the allocative mechanism in the command economy itself.[134] There would be far-reaching implications for China in allowing purchasing power to correspond more closely to consumer preference and market signals; it is not clear that these would be acceptable to any faction within China's Marxist-Leninist leadership if they were fully articulated.

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[128] Recent estimates suggest that total factor productivity may have been negative in the USSR during the 1970s, and in Yugoslavia during the early 1970s. See Nick Eberstadt, "Overview", in US Congress Joint Economic Committee, *Soviet Economy In the 1980s: Problems And Prospects* (Washington: Government Printing Office, 1983), and Mieko Nishimizu and John M. Page, Jr., " Total Factor Productivity Growth, Technological Progress And Technical Efficiency Change: Dimensions Of Productivity Change In Yugoslavia 1965–78", *Economic Journal* December 1982. In these cases, however, productivity decline was neither as dramatic nor as prolonged as in China. Reliable total factor productivity estimates have not been produced for socialist Vietnam or those more economically troubled regions of sub-Saharan Africa.

[129] For a critique of and unalternative to such numbers, see Irving B. Kravis et al., *World Product And Income: International Comparisons of Real Gross Product* (Baltimore: John Hopkins University Press, 1982).

[130] Macroeconomic Changes In The Chinese Economy During The Readjustment" op cit.

[131] Edward K.Y. Chen, "Factor Inputs, Total Factor Productivity And Economic Growth: The Asian Case", in the Japanese Journal *The Developing Economies* March 1977.

The ascent of purchasing power as an economic force in modern China would have important implications for the reformulation of patterns of national poverty. If household purchasing power assumes a more prominent role in the determination of economic events in China, disparities in purchasing power would also more fully shape the contours of material deprivaton within the nation. This could, in theory, expose a significant fraction of the national population to new risks of poverty. Yet it would not necessarily mean that China would replicate more closely the patterns of poverty seen in other low income nations. "Reform" and "readjustments" notwithstanding, China's leaders have not renounced the principle of command planning of economy and society, nor have they relinquished the practice of it, as the ongoing population control campaign should vividly demonstrate. "Readjustment" in the context of command planning could all too easily leave many households in China caught between a reduction in the social guarantees which had previously supported living standards, and official directives and restrictions which prevent actions to protect or improve family welfare.

Six years ago, at the start of the "period of readjustment", I speculated that "what will happen to the vast number of poor people in China remains an open question".[135] Much has changed in China since those days, and much more is known now about changes which have taken place. For better or worse, neither intervening events not the great amount of additional information which have become available in the meantime would seem to argue for an alteration of that earlier assessment.

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[132] "Overview", op. cit.

[133] Harvey Leibenstein, "Allocative Efficiency vs. 'X-efficiency'", *American Economic Review*, June 1966.

[134] See, on this score, Janos Kornai, *The Economics Of Shortage* (New York: Academic Press, 1978).

[135] Nick Eberstadt, *Poverty In China* (Bloomington: International Development Institute, 1979).

TABLE 1

Estimated Expectation of Life at Birth for The People's Republic of China and Other Selected Regions, c. 1950 - c. 1980 (both sexes in years)

	(1) 1950	(2) 1960	(3) 1970	(4) 1980
1. *People's Republic of China*	40	25	61	65
2. *Overseas Chinese Populations*				
a. Republic of China (Taiwan)	55	65	69	72
b. Hong Kong	(61)	67	71	75
c. Singapore	(60)	64	67	71
d. Peninsular Malaysia	(52)	57	66	70
3. *Populous Asian Nations*				
a. India	32	41	47	52
b. Indonesia	(36)	40	45	51
4. *Other Asian Benchmarks*				
a. Sri Lanka	58	62	65	68
b. South Korea	48	52	63	66
5. *Eurasian Industrial Powers*				
a. Soviet Union	64	68	70	68
b. Japan	60	68	72	76

Notes: Parenthetical figures are projections not based directly on census or survey results. Sources indicate year of estimate when this differs from column heading.

Sources:

Line 1: Judith Banister, "An Analysis of Recent Data on the Population of China," *Population and Development Review* *10*,2, June 1984; column 1 estimate is for 1953.

Line 2: a.: Directorate-General of the Budget, Accounting and Statistics *Statistical Yearbook of the Republic of China, 1981* (Taipei: Executive Yuan, 1981). Column 1 estimate is for 1951.

b.: Column 1: United Nations, *Demographic Indicators of Countries: Estimation And Projections As Assessed In 1980.* (New York: U.N. Department of International Economics and Social Affairs, 1982); projection is for 1950-55.

TABLE 1 (cont'd)

Columns 2 and 3: United Nations, Model Life Tables For Developing Countries (New York: U.N. Department of International Economic and Social Affairs, 1982); estimates are for 1960-62 and 1970-72.
Column 4: Hong Kong Life Tables (Hong Kong: Census and Statistics Division, November 1982); estimate is for 1981.

c.: Column 1: Demographic Indicators, op. cit.; projection is for 1950-55.
Column 2-4: Saw Swee-Hock, Demographic Trends In Singapore (Singapore: Department of Statistics, 1982); estimate for column 2 is for 1956-58.

d.: Column 1: Demographic Indicators, op. cit.; projection is for 1950-55.
Column 2 and 3: Dorothy I. Fernandez, Amos H. Hawley, and Silvia Predaza, The Population of Malaysia C.I.C.R.E.D. Series, 1975; estimate in column 2 is for 1957.
Column 4: United Nations, Demographic Yearbook 1982 (New York: United Nations, 1984); estimate is for 1979.

Line 3: a.: Column 1: Census of India, Actuarial Reports for the Census, 1881, 1891, 1901, 1911, 1921, 1931, and 1951 (New Delhi: Registar General, 1960); estimate is for 1941-50.
Column 2: Census of India, 1961 Census Life Tables, 1951-60: Expectation of Life In The Various States (New Delhi: Office of the Registar General, n.d.); estimate is for 1951-60.
Column 3: Model Life Tables for Developing Countries, op. cit.; estimate is for 1970-72.
Column 4: Government of India, Health For All By the Year 2000 A.D. (Delhi: Ministry of Health and Family Welfare, 1981); estimate is for 1976.

b.: Column 1: Demographic Indicators, op. cit.; projection is for 1950-55.
Column 2: U.S. Bureau of the Census, Levels And Trends of Mortality In Indonesia 1961 to 1970 (Washington: Department of Commerce, Bureau of the Census, n.d.)
Column 3: Estimates of Fertility And Mortality In Indonesia Based On The 1971 Population Census (Jakarta: Biro Pusat Statistik, January 1976); estimate is for 1971.
Column 4: U.S. Bureau of the Census, Country Profile: Indonesia (Washington; Department of Commerce, Bureau of the Census, August 1984); estimate is for 1976.

TABLE 1 (cont'd)

Line 4: a.: Columns 1-3: Model Life Tables For Developing Countries, op. cit.; estimates are for 1952-54, 1962-64, and 1970-72.
Column 4: Sri Lanka, Statistical Pocketbook 1983 (Colombo: Department of Census And Statistics, 1983); estimate is for 1979.

b.: Columns 1 and 2: Kwon Tai Hwan, Demography of Korea: Population Change And Its Components, 1925-66, (Seoul: Seoul National University Press, 1977); estimates are for 1950-55 and 1960-65.
Columns 3 and 4: National Bureau of Statistics, The Life Table of Korea (1978-79) (Seoul: Economic Planning Board, July 1982); estimate in column 4 is for 1978-79.

Line 5: a.: Column 1-3: United Nations, Levels And Trends of Mortality Since 1950 (New York: U.N. Department of International Economic And Social Affairs, 1982); estimates are for 1954-55, 1958-59, and 1968-71.
Column 4: Steven Rapawy and Godfrey Baldwin, "Demographic Trends In The Soviet Union, 1950-2000," in U.S. Congress Joint Economic Committee, Soviet Economy In The 1980's: Problems and Prospects (Washington: GAO, 1983).

b.: Column 1: Institute of Population Problems, The 22nd Abridged Life Tables (Tokyo: Ministry of Health and Welfare, 1970).
Columns 2-4: Japan Statistical Yearbook 1983 (Tokyo: Statistical Bureau, Prime Minister's Office 1983).

TABLE 2

Estimated Infant Mortality Rates for The People's Republic of China and Other Selected Regions, c. 1950 - c. 1980 (deaths per 1000)

	(1) 1950	(2) 1960	(3) 1970	(4) 1980
1. People's Republic of China	175	284	70	42
2. Overseas Chinese Populations				
a. Republic of China	91	42	27	22
b. Hong Kong	100	42	19	12
c. Singapore	82	35	21	12
d. Peninsular Malaysia	95	65	40	25
3. Populous Asian Nations				
a. India	(190)	(157)	(133)	(129)
b. Indonesia	(166)	(145)	(112)	(99)
4. Other Asian Benchmarks				
a. Sri Lanka	81	66	52	38
b. South Korea	116	93	52	38
5. Eurasian Industrial Powers				
a. Soviet Union	75	32	26	36
b. Japan	67	31	11	8

Notes: Parenthetical figures are projections. Sources indicate year of estimate when this differs from column heading.

Sources:

Line 1: Judith Banister, "An Analysis of Recent Data on the Population of China," *Population and Development Review* 10,2, June 1984; column 1 estimate is for 1953.

Line 2: a.: *Social Welfare Indicators, Republic of China, 1982* (Taipei: Manpower Planning Committee, Executive Yuan, 1982), column 1 estimate is for 1953.

b.: Column 1 and 2: *Hong Kong Statistics 1947-1967* (Hong Kong: Census and Statistics Department, 1969). Columns 3 and 4: *Hong Kong 1981 Census Asian Report, Volume 1: Analysis* (Hong Kong: Census And Statistics Department, December 1982). Estimates are for 1971 and 1981.

TABLE 2 (cont'd)

c.: Saw Swee-Hock, Demographic Trends In Singapore (Singapore: Department of Statistics, 1982).

d.: Columns 1 and 2: Monthly Statistical Bulletin Of The State Of Malaya, September 1965.
Columns 3 and 4: Monthly Statistical Bulletin, Peninsular Malaya, March 1983.

Line 3: a.: United Nations, Demographic Indicators of Countries: Estimates And Projections As Assessed In 1980, (New York: U.N. Department of International Economic and Social Affairs, 1982). Projections are for 1950-55, 1960-65, 1970-75, and 1975-80.

b.: Demographic Indicators, op. cit. Projections are for 1950-55, 1960-65, 1970-75, and 1975-80.

Line 4: a.: Columns 1-3: United Nations, Model Life Tables For Developing Countries (New York: U.N. Department of International Economic and Social Affairs, 1982). Estimates are for 1952-54, 1962-64, and 1970-72.
Column 4: United Nations, Demographic Yearbook 1982 (New York: United Nations, 1984). Estimate is for 1979.

b.: Columns 1 and 2: Kwon Tai Hwan, Demography of Korea: Population Change And Its Components, 1925-66 (Seoul: Seoul National University Press, 1977); estimates are for 1950-55 and 1960-65.
Columns 3 and 4: National Bureau of Statistics, The Life Table Of Korea (1978-79) (Seoul: Economic Planning Board, July 1982); estimate in column 4 is for 1978-79.

Line 5: a.: Column 1: Population Index July-September 1968, Estimate is for 1950-1954.
Columns 2-4: Adjusted from Christopher Davis and Murray Feshbach, Rising Infant Mortality In The U.S.S.R. In The 1970s (Washington: Bureau of the Census, Series P-95, #74, September 1980); estimates are for 1960-61, 1970-71, and 1975-76.

b.: Japan Statistical Yearbook 1983 (Tokyo: Statistical Bureau, Prime Minister's Office, 1983).

TABLE 3

Unadjusted Chinese Estimates of Life Expectation at Birth in The People's Republic of China by Province, 1973-75 (both sexes)

Province	Life Expectancy (Year)
Southeast Region	
Sichuan	60.1
Guizhou	59.3
Yunnan	60.6
Xizang (autonomous region)	61.3
Northwest Region	
Shaanxi	64.6
Gansu	NA
Qinghai	61.3
Ninxia (autonomous region)	62.5
Xinjiang (autonomous region)	62.5
Central South Region	
Henan	66.9
Hubei	NA
Hunan	62.5
Guangxi (autonomous region)	NA
Guangdong	NA
East Region	
Shanghai (municipality)	72.0
Jiangsu	67.2
Zhejiang	68.4
Anhui	65.7
Fujian	67.3
Jiangxi	63.2
Shandong	NA
North Region	
Beijing (municipality)	69.5
Tianjin (minicipality)	70.9
Hebei	68.6
Shanxi	66.6
Nei Monggol	66.3
Province	**Life Expectancy**
Northeast Region	
Liaoning	69.2
Jilin	65.8
Heilongjiang	70.4
National Average	64.9

Notes: NA: Not available
Figures rounded to nearest tenth. Figures do not adjust for under-reporting of deaths.

Source:

Rong Shou-de *et al.*, "Analysis of Life Expectancy In China, 1973-75" Journal of Population and Economics (Beijing) 1981 #1, quoted in International Bank for Reconstruction and Development. The Health Sector in China (Washington: World Bank, 1984).

Table 4

Estimates of Regional Differences
In Life Expectation At Birth
In The People's Republic of China, India, and Brazil
for Selected Years (Both Sexes)

	Period	Estimated Life Expectation at Birth (years)
1. China		
Urban Areas		
Shanghai municipality	1973-75	72
Tianjin municipality	"	71
Beijing municipality	"	70
Provinces		
Heilongjiang	1973-75	70
Liaoning	"	70
Sichuan	1973-75	60
Guizhou	"	59
(National Average)	1973-75	(65)
2. India		
States		
Kerala	1961-71	61
Punjab	"	54
Orissa	1961-71	43
Uttar Pradesh	"	40
(National Average)	1961-71	(46)
	Period	Estimated Life Expectation at Birth (years)
3. Brazil		
State		
Rio Grande do Sol	1970	65
Goiás	"	60
Santa Catarina	"	60
Alagoas	1970	43
Paraiba	"	42
Rio Grande do Norte	"	36
(National Average)	1970	(53)

Sources: Line 1: Table 3, this article.

Line 2: P.N. Mari Bhat, Samuel Preston, and Tim Dyson, Vital Rates In India, 1961-1981 (Washington: National Academy Press, 1984).

Line 3: Anuário Estatístico do Brasil 1983 (Rio de Janeiro: IBGE, 1984).

Table 5

Estimated Indices of Economic and Demographic Change
In The People's Republic of China
During the "Period of Readjustment," 1978-1982

	1978	1982	Percentage Change
1. National Income Per Capita (Rmb)	315	421	+34 (+21)
2. Consumption Per Capita (Rmb)	175	266	+52 (+32)
3. Grain Consumption Per Capita (Kg)	195.5	225.5	+15
4. Doctors Per 10,000 Population	10.8	12.9	+19
5. Infant Mortality Rate (deaths per 1,000)	37	46	+24
6. Life Expectation at Birth, both sexes (years)	65.1	64.7	-1

Notes: National Income Figure refers to PRC conception of "national income." Parenthetical figures indicate inflation-adjusted changes, as estimated by PRC State Statistical Bureau.

Sources: Lines 1-4: State Statistical Bureau, Statistical Yearbook of China 1983 (Hong Kong: Economic Information and Agency, 1983).

Lines 5-6: Judith Banister, "An Analysis of Recent Data On the Population of China" Population And Development Review 10, 2, June 1984.

Table 6

Estimated Daily Per Capita Caloric Availability in The People's Republic of China, for Selected Years 1952 - 1981

Year	Estimated Caloric Availability	Index (1957 = 100)
1952	1917	93
1957	2065	100
1960	1462	71
1965	1997	97
1970	2092	101
1975	2226	108
1977	2247	109
1980	2496	121
1981	2526	122

Note: Calorie availability estimated by food balance sheet approach. Calorie estimates to four places reflect computation process, not implicit accuracy.

Source: Alan Piazza, "Trends of Food and Nutrient Availability in China, 1950-81" World Bank Staff Working Papers #607, 1983.

Table 7

Estimated Daily Per Capita Caloric Availability In The People's Republic of China By Province or Autonomous Region, 1980

Province	Estimated Caloric Availability	Index (National Average=100)
Nei Monggol	1577	69
Guizhou	1631	71
Shanxi	1764	77
Gansu	1815	79
Shaanxi	1832	80
Yunnan	1895	83
Hebei	1998	87
Xizang	2061	90
Henan	2115	92
Anhui	2190	95
Xinjiang	2191	95
Ningxia	2226	97
Liaoning	2226	97
Hubei	2299	97
Guangxi	2381	104
Fujian	2384	104
Guangdong	2387	104
Sichuan	2389	104
Shandong	2482	108
Jilin	2495	109
Jiangxi	2578	112
Zhejiang	2679	112
Hunan	2763	120
Jiangsu	2793	122
Heilongjiang	3084	134

Note: Estimates derived from food balance sheet approach. Figures exclude all interprovincial and international trade in food crops. Caloric estimates to four places reflects the computation process, not implicit accuracy.

Source: Alan Piazza, "Trends In Food and Nutrient Availability in China, 1950-81" World Bank Staff Working Papers #607, 1983.

Table 8

Variation In Estimated Caloric Availability
Within the People's Republic of China, India, Indonesia, and Brazil

	Estimated Calories/Person/Day	Ratio
1. China, 1979-80		
a. Urban Areas	2901	
Rural Areas	2453	
(Urban to Rural)		1.18
b. High Availability Provinces		
Heilongjiang	2986	
Jiangsu	2841	
Hunan	2934	
Unweighted Average	2887	
Low Availability Provinces		
Gansu	1786	
Nei Monggol	1730	
Guizhou	1604	
Unweighted Average	1706	
(High Provinces to Low Provinces)		1.69
2. India, 1971-72		
a. Urban Areas	2067	
Rural Areas	2184	
(Urban to Rural)		0.95
b. High Consumption States, Rural		
Punjab	2969	
Haryana	2922	
Madhya Pradesh	2829	
Unweighted Average	2907	

(Table 8, cont.)

	Estimated Calories/Person/Day	Ratio
Low Consumption States, Rural		
Tamil Nadu	1879	
West Bengal	1849	
Kerala	1618	
Unweighted Average	1792	
(High to Low Consumption States, Rural)		1.63
c. High Consumption States, Urban		
Rajasthan	2405	
Madhya Pradesh	2280	
Himachal Pradesh	2258	
Unweighted Average	2314	
Low Consumption States, Urban		
Karnataka	1898	
Tamil Nadu	1791	
Kerala	1682	
Unweighted Average	1790	
(High to Low Consumption States, Urban)		1.29
3. Brazil, 1974		
a. Metropolitan areas	2006	
Urban Areas	2012	
Rural Areas	2283	
(Urban to Rural)		0.88
b. High Consumption Regions		
Region III (The South)	2361	
Region III (The South), rural	2847	

(Table 8, cont.)

	Estimated Calories/Person/Day	Ratio
Low Consumption Regions		
Region V (The Northeast)	1899	
Region V (The Northeast), rural	1980	
(Ratio, Region III to Region V)		1.24
(Ratio, Region III rural to Region V, rural)		1.44
4. Indonesia, 1978		
a. Urban Areas	1912	
b. Rural Areas	2002	
(Urban to Rural)		0.96
c. High Consumption Regions		
Kalimantan	2431	
Sulawesi	2408	
Unweighted Average	2420	
Low Consumption Region		
Central Java	1605	
East Java	1584	
Unweighted Average	1594	
(High to Low Consumption Regions)		1.52

Note: Estimates for China, Line b, derived from food balance sheet approach; figures exclude all interprovincial and international trade in food crops. All other figures derived from consumption surveys. Caloric estimates to four places reflect the computation process, not implicit accuracy.

Sources: Line 1: a. State Statistical Bureau, Statistical Yearbook of China, 1983 (Hong Kong: Economic Information and Agency, 1983). b. Alan Piazza, "Trends of Food and Nutrient Availability in China, 1950-81" World Bank Staff Working Papers #607, 1983.

Line 2: National Sample Survey Organization, The National Sample Survey, Twenty-sixth Round: July 1971-June 1972 Number 238 Volume I. (New Delhi: Department of Statistics, Ministry of Planning, 1976).

Line 3: Vinod Thomas, "Differences In Income, Nutrition and Poverty Within Brazil" World Bank Staff Working Paper #505, February 1982.

Line 4: Dov Chernichovsky and Oey Astra Meesook, "Food Consumption and Nutrition in Indonesia" World Bank Staff Working Papers #670, 1984.

Table 9

Estimated Fraction Of Total Caloric Availability Derived From "Grain": People's Republic Of China And Selected Other Areas

	Period	Total Caloric Availability	Percent From "Grain"
1. People's Republic Of China	1952	1917	88.3
	1957	2065	88.4
	1960	1462	87.0
	1970	2092	89.5
	1975	2226	89.0
	1979-81	2531	87.1
Group 1			
2. Hong Kong	1972-74	2596	48.4
3. Peninsular Malaysia	1972-74	2428	62.3
4. Singapore	1972-74	2787	49.8
Group 2			
5. Brazil	1972-74	2471	52.9
6. Mexico	1972-74	2625	58.6
7. Sri Lanka	1972-74	2071	65.3
8. Thailand	1972-74	2297	78.4
Group 3			
9. Bangladesh	1972-74	1949	86.0
10. Ethiopia	1972-74	1879	82.9
11. Java, Poorest 40%	1978	1747	80.2

Note: Caloric availability given in estimated calorie PRC per person per day. "Grain", after standard official Chinese usage of the term, is taken to include not only cereals, but roots and tubers, and pulses and legumes. All estimates but line 11 are from food balance sheet approach; line 11 is derived from a nutrition survey. Caloric estimates to four places reflects computation process, not implicit accuracy.

Sources: Line 1: Alan Piazza, "Trends in Food and Nutrient Availability in China, 1950-81", World Bank Staff Working Papers #607, 1983.

Lines 2-10: Food and Agriculture Organization (FAO), Provisional Food Balance Sheets 1972-74 Average (Rome: FAO, 1977).

Line 11: Dov Chernichovsky and Oey Astra Meesook, "Patterns of Food Consumption and Nutrition in Indonesia: An Analysis of the National Socioeconomic Survey, 1978", World Bank Staff Working Papers #670, 1984.

Table 10

Estimated Fraction Of Household Expenditure Allocated To Food In Urban and Rural Areas: People's Republic of China And Selected Other Regions

	Period	Estimated Fraction Allocated To Food
A. Urban Areas		
1. People's Republic Of China(Staff and Workers in Cities)	1982	58.7%
2. Peninsular Malaysia	1973	30.1%
3. Hong Kong	1963/64	46.8%
4. Pakistan	1971/72	49.3%
5. India	1964/65	60.7%
6. Indonesia	1978	59.7%
B. Rural Areas		
7. People's Republic Of China (Peasant Households)	1982	60.5%
7a. (Liaoning Province)	"	(54.7%)
7b. (Anhui Province)	"	(63.8%)
7c. (Guizhou Province)	"	(65.6%)
7d. (Gansu Province)	"	(67.8%)
8. Peninsular Malaysia	1973	41.2%
9. Pakistan	1971/72	57.5%
10. India	1964/65	70.5%
11. Indonesia	1978	69.6%

Note: Survey methodologies differ among countries compared in this table.

Sources: Lines 1 and 7-7d: State Statistical Bureau, Statistical Yearbook Of China 1983 (Hong Kong: Economic Information And Agency, 1983).

Lines 2-5 and 8-10: Food and Agriculture Organization (FAO) Review of Food Consumption Surveys 1977 (Household Food Consumption by Economic Groups) (Rome: FAO, 1979).

Lines 6 and 11: Dov Chenichovsky and Oey Astra Meesook, "Patterns of Food Consumption and Nutrition in Indonesia: An Analysis of the National Socioeconomic Survey, 1978", World Bank Staff Working Papers #670, 1984.

Table 11

Estimated Mortality Rates For Children
From 1 to 4 Years Of Age In The People's Republic Of China
And Selected Other Regions, c. 1950 - c. 1980 (deaths per 1000)

	(1) 1950	(2) 1960	(3) 1970	(4) 1980
1. People's Republic of China	25	NA	6	5
2. Overseas Chinese Populations				
a. Republic of China (Taiwan)	17	8	3	1
b. Hong Kong	NA	4	1	-
c. Singapore	NA	4	1	-
d. Peninsular Malaysia	12	8	4	2
3. Populous Asian Nations				
a. India	40	24	17	15
b. Indonesia	NA	28	26	18
4. Other Asian Bench-marks				
a. Sri Lanka	17	10	6	3
b. South Korea	21	16	4	3
5. Eurasian Industrial Powers				
a. Soviet Union	NA	4	3	3
b. Japan	9	2	1	-

Notes: NA = Not Available; - = Less than 1 per 1000

Sources: Line 1: Columns 1 and 3: based on Ling Rui-Zhu "A Brief Account of 30 years' Mortality of Chinese Population" World Health Statistics Quarterly 34, 2, 1981. Figures given are for 1957 and 1975, and are adjusted for presumed 20; under count of mortality for both sexes. Adjustments based on age distribution data and urban-rural population distribution data from State Statistical Bureau Statistical Yearbook of China 1983 (Hong Kong: Economic Information and Agency, 1983).

Column 4: based on Ziang Zhenghua and Zhu Limei, Renkou Yu Jingji, 3, 1984, translated in Joint Publication Research Seminar, series CPS-84-075, November 1, 1984. Mortality estimates are adjusted for presumed 15% undercount of child deaths for each sex.

(Table 11, cont.)

Line 2: a: Directorate-General of the Budget, Accounting and Statistics, Statistical Yearbook of the Republic of China 1981 (Taipei: Executive Yuan, 1981). Estimate in column 1 is for 1953.

b: Columns 2 and 3: United Nations, Model Life Tables for Developing Countries (New York: UN Department of International Economic and Social Affairs, 1982); estimates are for 1960-62 and 1970-72.

Column 4: Hong Kong 1891 Census, Main Report Volume 1: Analysis (Hong Kong: Census and Statistics Department, December 1982); estimate is for 1981.

c: Columns 2 and 4: derived from Saw Swee-Hock, Demographic Trends in Singapore (Singapore: Department of Statistics, 1982) estimates for column 2 is for 1956-58, and in column 3 for 1969-71.

d: Columns 1 and 2: Monthly Statistical Bulletin of the States of Malaya, September 1965; estimate for column 1 is for 1955, columns 3 and 4: Monthly Statistical Bulletin, Peninsular Malaysia, March, 1983.

Line 3: a: Column 1: Census of India, Actuarial Reports for the Census 1881, 1891, 1901, 1911, 1921, 1931, and 1951. (New Delhi: Registrar General, 1960); estimate is for 1941-50.

Column 2: Census of India, 1961 Census Life Tables, 1951-60: Expectation of Life in the Various States (New Delhi: Office of the Registrar General, n.d.); estimate is for 1951-60.

Columns 3 and 4: derived from P.N. Mari Bhat, Samuel Preston, and Tim Dyson, Vital Rates in India, 1961-1981 (Washington: National Academy Press, 1984); estimates are for 1972 and 1971-81.

b: Columns 2 and 3: US Bureau of the Census, Levels And Trends of Mortality For Indonesia 1961 to 1971 (Washington: Department of Commerce, Bureau of the Census, n.d.), column 3 estimate is for 1971.

Column 4: US Bureau of the Census, Country Profile: Indonesia (Washington: Department of Commerce, Bureau of the Census, August 1984); estimate is for 1976.

(Table 11, cont.)

Line 4: a: columns 1-3: Model Life Tables for Developing Countries, Op. Cit. ; estimates are for 1952-54, 1962-64, and 1970-72.

column 4: United Nations, Demographic Yearbook, 1982 (New York: United Nations, 1984) estimate is for 1979.

b: columns 1 and 2: Kwon Tai Hwan, Demography of Korea: Population Change and Its Components, 1925-66 (Seoul: Seoul National University Press, 1977); estimates are for 1950-65.

columns 3 and 4: National Burueau of Statistics, The Life Table of Korea (1978-79) (Seoul: Economic Planning Board, July 1982); estimates in column 4 is for 1978-79.

Line 5: a: columns 2-4: derived from Christopher Davis and Murray Feshbach, Rising Infant Mortality in the USSR In the 1970's (Washington: Bureau of the Census, Series p-95, #74, September 1980); estimates are for 1960/61, 1970/71, and 1975/76.

b: Japan Statistical Yearbook 1983 (Tokyo: Statistical Bureau, Prime Minister's Office, 1983).

Table 12

Median Heights And Weights For Children In
The People's Republic of China, Brazil and Korea

	Height by Age (cm)				Weight by Age (kg)			
	7	10	13	16	7	10	13	16
1. China								
A. Urban Shanghai								
males 1979	118.0	131.0	145.0	162.0	20.0	26.0	34.9	49.1
males 1959	114.9	125.6	139.5	157.8	18.7	23.7	31.8	44.9
females 1979	117.3	131.5	146.6	155.4	19.6	25.8	36.0	46.7
females 1959	111.2	123.6	141.0	152.4	18.3	22.9	31.9	44.8
B. Schoolchildren, Beijing and Rural Gansu, 1980								
Beijing males	125.3	136.4	156.0	-	24.3	28.9	41.4	-
Rur.Gansu males	114.5	124.6	140.2	-	25.6	26.5	34.1	-
Beijing females	122.4	136.3	156.0	-	22.4	28.6	42.0	-
R.Gansu females	112.5	125.3	143.1	-	22.4	26.5	35.0	
C. 16 Province Survey, 1979								
Urban males	121.2	-	-	-	21.3	-	-	-
Rural males	117.3	-	-	-	20.3	-	-	-
Urban females	120.4	-	-	-	20.6	-	-	-
Rural females	116.3	-	-	-	19.6	-	-	-
Rural Liaoning males	118.8	-	-	-	21.1	-	-	-
Rural Sichuan males	113.5	-	-	-	19.2	-	-	-
Rural Liaoning females	117.3	-	-	-	20.3	-	-	-
Rural Sichuan females	112.9	-	-	-	18.5	-	-	-
Urban Liaoning males	121.6	-	-	-	21.1	-	-	-
Urban Sichuan males	118.7	-	-	-	20.5	-	-	-
Urban Liaoning females	121.0	-	-	-	20.5	-	-	-
Urban Sichuan females	118.0	-	-	-	19.6	-	-	-

(Table 12, cont.)

	Height by Age (cm)				Weight by Age (kg)			
	7	10	13	16	7	10	13	16
2. Brazil, 1975								
A. Sao Paulo vs. The Northeast (Region II vs. Region V)								
Sao Paulo males	120.0	135.5	155.5	166.3	22.2	29.5	40.1	54.0
Northeast males	114.0	128.7	142.2	158.9	19.8	26.0	34.1	47.9
Sao Paulo fem.	119.6	135.8	151.8	157.3	22.0	30.5	42.9	51.0
Northeast fem.	114.4	128.8	146.2	153.2	19.7	26.2	38.5	47.8
3. Korea (South)								
A. Schoolchildren, 1980 vs. 1965								
males, 1980	120.0	134.4	150.4	165.6	22.2	29.3	40.0	55.5
males, 1965	112.5	128.3	143.4	162.5	19.1	25.4	34.7	50.7
females, 1980	119.6	134.8	150.7	156.5	21.4	29.4	42.7	51.5
females, 1965	112.0	128.6	144.9	154.7	19.1	25.2	36.2	47.6
B. Schoolchildren, Seoul vs Chollanam Province, 1980								
Seoul males	121.8	135.4	153.2	167.7	22.6	30.2	41.6	55.1
Chollanam Do m.	119.0	132.8	148.4	164.2	21.9	28.6	37.8	54.5
Seoul females	120.7	137.6	152.2	156.1	21.6	31.2	43.9	50.1
Chollanam Do f.	118.7	133.1	148.8	155.5	20.7	28.2	41.5	52.3

Sources: Line 1: World Bank, "The Nutritional Status of Children in China: A Review of the Anthropometric Evidence:, PHN Technical Notes, GEN-17, August 1983.

Line 2: *Anuário Estatístico do Brasil - 1980* (Rio de Janeiro: IBGE, 1980).

Line 3: for 1965: Ministry of Health and Social Affairs, *Yearbook of Public Health and Social Statistics, 1980* (Seoul: Ministry of Health and Social Affairs, 1980).

for 1980: Ministry of Education, *Statistical Yearbook of Education, 1981* (Seoul: Ministry of Education, 1981).

TABLE 13

Estimated Adult Rates of Illiteracy in The People's Republic of China and Other Selected Regions, c. 1950 - c. 1980 (percentage)

	(1) 1950	(2) 1960	(3) 1970	(4) 1980
1. People's Republic of China (12+) (Illiterates and Semi-lterates)	(70-80)	59	NA	31
2. Overseas Chinese Populations				
a. Republic of China (Taiwan) (15+)	43	27	22	14
b. Hong Kong (15+)	NA	29	23	16
c. Singapore (15+)	54	50	31	17
d. West Malaysia (15+)	61	53	42	24
3. Populous Asian Nations				
a. India (15+)	80	72	66	(60)
b. Indonesia (15+)	NA	61	43	32
4. Other Asian Benchmarks				
a. Sri Lanka (15+)	32	25	22	14
b. South Korea (15+)	NA	29	12	(7)
5. Eurasian Industrial Powers				
a. Soviet Union (9-49 only)	NA	--	--	--
b. Japan (15+)	2	2	--	--

Notes: NA = Not Available
-- = less that 2%
Definitions of illiteracy vary by country and by the given census.
Parenthetical figures are projections.

Sources:

Line 1: Column 1: taken from Evelyn S. Rawski, Education and Popular Literacy In China. China. (Ann Arbor: University of Michigan Press, 1949). Estimates for pre-1949. Column 2 and 4: Calculated from State Statistical Bureau, Statistical Yearbook of China 1983 (Hong Kong: Economic Information and Agency, 1983); estimates are for 1964 and 1982.

TABLE 13 (cont'd)

Line 2: a. Directorate-General of the Budget, Accounting and Statistics. Statistical Yearbook of the Republic of China, 1981 Taipei: Executive Yuan); estimate in column 1 is for 1951.

b. Hong Kong Census Main Report Volume 1: Analysis. (Hong Kong Census and Statistics Department, December 1982). Estimates are for 1961, 1971, and 1981.

c. Columns 1 and 3: UNESCO, Statistics of Educational Attainment and Illiteracy 1945-1974. (Paris: UNESCO Statistical Reports and Studies #22, 1977). Estimates in columns 1 and 2 are for 1947 and 1957. Column 4: Khoo Chian Kim, Census of Population 1980 Singapore Release #1. (Singapore: Department of Statistics, 1981).

d. Column 1: M.V. de Tufo, A Report on the 1947 Census of Population (Kuala Lumpur: The Government Printer, 1949); estimate is for 1947. Columns 2 and 3: Statistics of Educational Attainment, op. cit., estimate for column 2 is for 1957.
Column 4: Population and Housing Census of Malaysia 1980 General Report on the Population Census, Volume 2 (Kuala Lumpur, Department of Statistics Malaysia, n.d.)

Line 3: a. Columns 1 and 3: Statistics of Educational Attainment, op. cit., estimates are for 1951, 1961, and 1971.
Column 4: UNESCO, Estimates and Projections of Illiteracy. (Paris, UNESCO, Division of Statistics, September 1978).

b. Columns 2 and 3: Statistics of Educational Attainment, op. cit., estimates are for 1961 and 1971.
Column 4: Results of Sub-Sample of 1980 Population Census Preliminary Tables, (Jakarta: Biro Pusat Statistik, 1982).

Line 4: a. Columns 1 and 3: Statistics of Educational Attainment, op. cit. estimates are for 1953, 1963, and 1971.
Column 4: Census of Population and Housing Sir Lanka 1981 Population Table Based on a Ten Percent Sample. (Colombo: Department of Census and Statistics, February 1982). Estimate is for 1981.

b. Columns 2 and 3: Statistics of Educational Attainment, op. cit.
Column 4: Estimates and Projections of Illiteracy, op. cit.

Line 5: a. Central Statistical Board of the U.S.S.R., The U.S.S.R., in Figures for 1979. (Moscow: Statistika Publishers, 1980).

b. Column 1 and 3: Statistics of Educational Attainment, op. cit., column 1 is for 1948.
Column 4: UNESCO, Statistical Yearbook 1982. (Paris: UNESCO, 1982).

TABLE 14

Regional Variations in Estimated Adult Illiteracy: The People's Republic of China, India, Indonesia, and Brazil

		Illiteracy Rate
1.	People's Republic of China, 1982 (12+) (Illiterates and Semi-literates)	
A.	Urban Areas	16
	Rural Areas	35
B.	Liaoning Province	17
	Guizhou	48
	Xizang (Tibet) Autonomous Region	75
2.	India, 1971 (15+)	
A.	Urban Areas	40
	Rural Areas	73
B.	Kerala State	31
	Bihar	76
	Rajastjai	78
3.	Indonesia, 1980 (15+)	
A.	Urban Areas	17
	Rural Areas	36
4.	Brazil, 1978 (15+)	
A.	Urban areas	16
	Rural areas	42
B.	Sao Paulo (Region II)	14
	The South (Region III)	16
	The Northeast (Region V)	44

Notes: Definitions of illiteracy and urban areas differ among surveys and censuses presented in this table.

Sources:

Line 1: Economic Daily December 19, 1983 quoted China News Analysis 1256, March 12, 1984.

Line 2: a.: UNESCO, Statistical Yearbook 1983 (Paris: UNESCO, 1983).

b.: Government of India, A Handbook of Educational And Allied Statistics (New Delhi: Ministry of Education and Culture, 1980).

Line 3: Results of the Sub-Sample of 1980 Population Census Preliminary Tables (Jaharta: Biro Pusat Statistik 1982).

Line 4: UNESCO, Statistical Yearbook 1984 (Paris: UNESCO 1984).
Anuário Estatístico do Brazil - 1980. (Rio de Janeiro: IBGE, 1980).
Janeiro: IBGE, 1980).

TABLE 15

Estimated Rates of Illiteracy for Younger Age Cohorts: The People's Republic of China, India, Indonesia, and Brazil

	Estimated Illiteracy Rate (percent)
1. China 1982 (age 12-44) (illiterates and Semi-literates)	
Beijing	3
Liaoning	4
Jiangxi	19
Guizhou	38
Xizang (Tibet) Autonomous Region	69
National Average	19
2. India 1971 (age 15-35)	
Kerala	19
Tamil Nadu	48
Punjab	53
Madhya Pradesh	66
Bihar	71
Rajasthan	72
All India	58
3. Indonesia 1980 (age 15-19)	
Urban	5
Rural	16
National Average	13
4. Brazil 1978 (age 20-29)	
Rio de Janerio (Region I)	6
Sao Paulo (Region II)	6
The South (Region III)	9
The Northeast (Region V)	33
National Average	15

Note: Definitions of illiteracy vary among surveys compared in this table.

Sources:

Line 1: *Economic Daily* December 19, 1983, quoted in *China News Analysis*, 1256, March 12, 1984.

Line 2: Government of India, *A Handbook of Educational And Allied Statistics* (New Delhi: Ministry of Education and Culture, 1980).

Line 3: *Results of the Sub-Sample of 1980 Population Census Preliminary Tables* (Jakarta: Biro Pusat Statistik, 1982).

Line 4: Anuário Estatístico do Brazil - 1980. (Rio de Janeiro: IBGE, 1980).

TABLE 16

Estimated Gross and Net Primary Enrollment Ratios for The People's Republic of China and Selected Other Regions, c. 1980

	(1) Gross Enrollment	(2) Net Enrollment
1. *People's Republic of China* (1981)	118	93
2. *Overseas Chinese Populations*		
a. Republic of China (1980)	NA	100
b. Hong Kong (1980)	109	97
c. Singapore (1980)	107	98
d. Malaysia (1980)	92	NA
3. *Populous Asian Nations*		
a. India (1978)	85	66
b. Indonesia (1980)	112	92
4. *Other Asian Benchmarks*		
a. Sri Lanka (1981)	100	NA
b. South Korea (1980)	109	100
5. *Eurasian Industrial Powers*		
a. Soviet Union (1980)	106	NA
b. Japan (1980)	100	100

NA = Not Available

Notes: Duration of and age norms for, primary schooling varies among the countries compared in this table.

Sources:

Line 1: Column 1: UNESCO, *Statistical Yearbook 1983* (Paris: UNESCO, 1983).
Column 2: Ji Hua, "Education In China" in Xue Muqiao, ed., *Almanac of China's Economy 1981* (Hong Kong: Modern Cultural Company, Ltd., 1982.)

TABLE 16 (cont'd)

Line 2: a.: *Social Welfare Indicators Republic of China 1981* (Taipei: Manpower Planning Committee, Executive Yuan, 1982).

b.: *Statistical Yearbook, 1983, op. cit.*

c.: *ibid.*

d.: *ibid.*

Line 3: a.: Column 1: Government of India, *Selected Educational Statistics, 1978-79* (New Delhi: Ministry of Education and Culture, 1980).
Column 2: *Fourth All-India Educational Survey* (New Delhi: National Council of Educational Research and Training, 1980).

b.: *Statistical Yearbook, 1983, op cit.*

Line 4: a.: *Statistical Yearbook, 1983, op cit.*

b.: *Ibid.*

Line 5: a.: *Statistical Yearbook, 1983, op cit.*

b.: *Ibid.*

TABLE 17

Differences In Estimated Male and Female Illiteracy Rates for The People's Republic of China and Selected Other Regions, c. 1980 (percent)

	Male Illiteracy Rate	Female Illiteracy Rate	Difference
1. People's Republic of China (1982, 12+) (Illiterates and Semi-literates)	19	45	-26
2. Overseas Chinese Populations			
a. Republic of China (Taiwan) (1982, 15+)	5	18	-12
b. Hong Kong (1981, 15+)	8	26	-18
c. Singapore (1980, 15+)	8	26	-18
d. Peninsular Malaysia (1980, 15+)	14	33	-19
3. Populous Asian Nations			
a. India (1971, 15+)	52	81	-28
b. Indonesia (1980, 15+)	22	41	-19
4. Other Asian Benchmarks			
a. Sri Lanka (1981, 15+)	9	19	-10
b. South Korea (1970, 15+)	6	19	-13
5. Eurasian Industrial Powers			
a. Soviet Union (1979, 9-49)	--	--	0
b. Japan (1980, 15+)	--	--	0

Notes: -- = under 2%
Definition of illiteracy vary among the censuses represented here.
Figures may not add up due to rounding.

Sources:

Line 1: *Economic Daily*, December 19, 1983, quoted in *China News Analysis* 1256, March 12, 1984.

Line 2: a.: *1982 Taiwan-Fukien Demographic Fact Book Republic of China* (Republic of China: Ministry of the Interior, December 1983).

b.: Hong Kong 1981 Census, Main Report, Volume 1: Analysis (Hong Kong: Census and Statistics Department, December 1982).

c.: UNESCO, Statistical Yearbook 1983 (Paris: UNESCO, 1983).

d.: Population And Housing Census of Malaysia 1980, General Report of the Census, Volume 2 (Kuala Lumpur: Department of Statistics, Malaysia, n.d.).

Line 3: a.: Statistical Yearbook 1983, op. cit.

b.: Results of the Sub-Sample of 1980 Population Census Preliminary Tables (Jakarta: Biro Pusat Statistik, 1982).

Line 4: a.: Statistical Yearbook, 1983 op. cit.

b.: ibid.

Line 5: a.: Statistical Yearbook 1983, op. cit.

b.: ibid.

TABLE 18

Differences Between Estimated Male and Female Gross Primary Enrollment Ratio in The People's Republic of China and Selected Other Regions, c. 1980 (percent)

	Year	Male	Female	Difference
1. People's Republic of China	1981	130	106	-24
2. Overseas Chinese Population				
a. Republic of China (Tawian)	1981	99+	99+	0
b. Hong Kong	1981	108	104	- 4
c. Singapore	1981	108	105	- 3
d. Malaysia	1982	94	91	- 3
3. Populous Asian Nations				
a. India	1980	93	64	-29
b. Indonesia	1981	123	110	-13
4. Other Asian Benchmarks				
a. Sri Lanka	1981	106	100	- 6
b. South Korea	1981	108	105	- 3
5. Eurasian Industrial Powers				
a. Soviet Union	NA	NA	NA	NA
b. Japan	1981	100	100	0

NA = Not Available

Sources: Line 2. a.: Social Welfare Indicators, Republic of China 1982 (Taipei: Manpower Planning Committee, Executive Yuan, 1982).

All others: UNESCO, Statistical Yearbook 1983 (Paris: UNESCO 1984).

TABLE 19

Estimated Ratio of Female to Male Mortality Rates for the Ages 1-4, People's Republic of China and Selected Other Regions, c. 1950 - c. 1980 (deaths per 1000)

	(1) 1950	(2) 1960	(3) 1970	(4) 1980
1. People's Republic of China	1.09	NA	1.01	1.11
2. Overseas Chinese Populations				
a. Republic of China	1.09	0.92	0.89	0.85
b. Hong Kong	NA	1.02	0.79	--
c. Singapore	NA	NA	0.86	--
d. West Malaysia	1.03	1.03	0.99	0.96
3. Populous Asian Nations				
a. India	1.22	1.18	1.31	NA
b. Indonesia	NA	0.87	0.88	0.89
4. Other Asian Benchmarks				
a. Sri Lanka	1.22	1.19	1.18	NA
b. South Korea	0.91	0.78	0.88	1.89
5. Eurasian Industrial Powers				
a. Soviet Union	NA	NA	NA	NA
b. Japan	1.0	0.85	0.73	--

Notes: -- = death rates for both sexes under 1 per 1,000

Sources: See Table 11, this article

TABLE 20

World Bank Estimates for GDP Per Capita and Life Expectation at Birth for Nations with Life Expectations at Birth Similar to that of The People's Republic of China, c. 1982

	World Bank Estimated	
	Life Expectation, c. 1982	GDP Per Capita, 1982 (current U.S. dollars)
El Salvador	63	700
Thailand	63	790
Philippines	64	820
Ecuador	63	1350
Turkey	63	1370
Colombia	64	1460
Paraquay	65	1610
Syriga	66	1680
Jordan	64	1690
Malaysia	67	1860
Korea (South)	67	1910
Brazil	64	2240
Mexico	65	2270
1. Unweighted Average	64	1520
2. People's Republic of China	65	310
3. Ratio, 1 ÷ 2	1.00	4.90

Note: World Bank estimates may differ from other sources. Figures and ratios reflect rounding.

Sources:

Life expectancy estimate for China from Judith Banister, "An Analysis of Recent Data on the Population of China" *Population and Development Review* 10, 2, June 1984. All other estimates from World Bank, *World Development Report 1984* (New York: Oxford University Press, 1984).

TABLE 21.

World Bank Estimates for GDP Per Capita and Adult Illiteracy Rates for Nations with Estimated Adult Illiteracy Rates Similar to that of The People's Republic of China, c. 1982

	World Bank Estimated	
	Adult Illiteracy Rates (Percent) c. 1977	GDP Per Capita, 1980 (current U.S. dollar)
Burma	30	170
Tanzania	34	280
Indonesia	38	430
Hondouras	40	560
El Salvador	38	660
Dominican Republic	33	1160
Tunisia	38	1310
Jordan	30	1420
Turkey	40	1470
1. Unweighted Average	36	830
2. People's Republic of China 1982 (15+)	35	310 (1982)
3. Ratio, 1 ÷ 2	1.03	2.67

Note: World Bank estimates may differ from other sources. Figures and ratios reflect rounding.

Sources:

For China: literacy estimate from UNESCO, Statistical Yearbook 1984 (Paris: UNESCO 1984); GDP per capita from World Bank, World Development Report 1984 (New York: Oxford University Press 1984).
All other estimates from World Bank, World Development Report 1982 (New York: Oxford University Press, 1982).

III. AGRICULTURE AND THE RURAL ECONOMY

OVERVIEW: AGRICULTURAL REFORM AND THE RURAL ECONOMY

By Nicholas R. Lardy*

INTRODUCTION

The papers in this section provide comprehensive reviews of rural reform in China since 1978. Changes in the systems of rural ownership and in agricultural production arrangements have been far more profound than the changes made to date in other sectors of the Chinese economy. This overview chapter is selective, seeking first to document the acceleration in the pace of agricultural development since 1978 and second, to examine in a very preliminary and tentative way the causes of this growth acceleration.

Chinese agricultural performance up to 1979 was mixed. On the one hand there seemingly had been a substantial success in the diffusion of modern seeds such as high yielding dwarf rice varieties, hybrid corn and sorghum; in the expansion of irrigated land and in the share of irrigated land where the water was controlled by either electric or internal combustion engine-drive pumps; and in the development of a significant modern chemical fertilizer industry. On the other hand, the output performance of agriculture was not congruent with this seeming technological revolution. The long-term (1957–1978) growth of cereal output was only just equal to the expansion of the population. Over this period, China actually was becoming more dependent on imported grain to feed its population. As relative farm level prices fell and peasants became less willing to sell grain to the state imports to feed the urban population grew steadily. By 1978, about 30 million urbanites, roughly 40 percent of the population of China's municipalities, were dependent on imported cereals. The performance of most nongrain crops was even less impressive and in the late 1970s China had become the world's largest importer of edible vegetable oils and raw cotton. The livestock sector and aquatic production also showed quite modest long-term growth up to 1978, largely due to lack of adequate production incentives and mismanagement.

The slow growth of farm output, not surprisingly, was accompanied by extraordinarily modest growth of peasant income. Income derived from collective sources rose by only one half of 1 percent per year between 1965 and 1977. Over the same Cultural Revolution years constraints on private marketing activities and reductions (and in some places elimination) of private plots curtailed the income derived from private plots and what the Chinese refer to as rural household sideline activities. By 1977–78 rural real income was, at best, only slightly above the level of 1956–57.[1]

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China's extreme shortage of arable land is the most common explanation of the paradoxical combination of technological innovation, on the one hand, and sluggish growth of rural output and income, on the other. Centuries of slow but sustained population growth virtually had exhausted the arable frontier by the middle of the twentieth century and the man-arable land ratio had risen to levels far higher than in other Asian countries where agricultural modernization had been achieved with the seed and fertilizer revolution that was being applied in China. In short, a substantial and continuing infusion of modern inputs was required merely to offset the disadvantage of the rising man-land ratio. The alternative to this increased flow of modern inputs would have been sharply diminishing returns to the application of increased quantities of traditional inputs.

As will be explained below, the record of the past six years suggests an alternative hypothesis—that the growth of output prior to 1979 was inhibited not by diminishing returns but by certain inefficiencies of China's collective production structure and the loss of productivity entailed in the promotion of local self-sufficiency and the curtailment of rural marketing. This hypothesis and a brief analysis of its implications for future growth are set forth below.

THE CONTRASTING PATTERNS OF GROWTH

Chinese agriculture has grown at an unprecedented pace since 1978. Grain output, for example, has grown from 305 to 407 million metric tons, an average annual rate of almost 5 percent, well over twice the historic rate of 2.1 percent achieved between 1957 and 1978. Grain production per capita, for the first time, has advanced significantly beyond the benchmark level of 302 kilograms achieved in 1957 and, more significantly, has surpassed decisively the level of per capita output achieved in the last normal pre-war years, i.e., the early 1930s.[2] Similarly, per capita consumption of grain has surpassed on a sustained basis the levels of the 1950s and of the 1930s for the first time.[3]

TABLE 1.—COMPARATIVE AGRICULTURAL PERFORMANCE, 1957–1978 AND 1978–1984

[Average annual growth rates, percent]

	1957-1978	1978-1984
Grain	2.1	4.9
Soybeans	[illegible]	4.2

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[1] Nicholas R. Lardy, "Agriculture in China's Modern [illegible]bridge: Cambridge University Press, 1983), pp. 157–163.

[2] The per capita production figure of 302 kil[illegible] per [illegible]ade weight."

[3] Average consumption of grain per capit[illegible] weight) in 1956 and 1957. This level was not reattained un[illegible] the level of per capita grain consumption was 173.5 kilograms, 15 perce[illegible] of 1956–57. Nicholas R. Lardy, "Agriculture in China's Modern Economic [illegible]bridge: Cambridge University Press, 1983), p. 150.

TABLE 1.—COMPARATIVE AGRICULTURAL PERFORMANCE, 1957–1978 AND 1978–1984—Continued

[Average annual growth rates, percent]

	1957–1978	1978–1984
Cotton	1.3	18.7
Oil-bearing crops	1.0	14.6
Sugarcane	3.4	11.1
Sugar beets	2.8	20.5
Tea	4.2	7.4
Tobacco	7.0	[1] 15.2
Meat [2]	3.7	10.1
Fish	1.9	4.6

[1] 1978–83.

[2] Includes pork, beef, and mutton.

Sources: State Statistical Bureau, "Chinese Statistical Yearbook 1983," (Peking: Statistical Publishing House, 1983), pp. 158–161; "Statistical Yearbook of China 1984" (Peking: Statistical Publishing House, 1984), pp. 141–143; "Communique on Fulfillment of China's 1984 Economic and Social Development Plan," Beijing Review No. 12 (March 25), 1985.

Unlike most of the twenty years prior to 1979, grain growth has not been achieved at the expense of noncereal crops. The official jettisoning of the policy of "take grain as the key link" and the reopening of rural markets, have stimulated an upsurge of production of non-cereal crops. As shown in Table 1, after two decades of indifferent performance, soybeans, cotton, and edible vegetable oils have all posted stunning advances since 1978. Output of cotton, traditionally China's second most important crop after cereals, almost tripled between 1978 and 1984. The output of oil seed crops, so important to the Chinese diet, more than doubled. The output of minor crops, such as sugarcane and sugar beets, has also accelerated markedly. Nonfood crops such as tea and tobacco have achieved notably higher growth rates. Production of pork, beef, and mutton exceeded 15 million tons, up about 80 percent from 1978, facilitating the elimination of pork rationing. Fish production too has increased since 1978, but at a much slower pace. This reflects, as is pointed out in Jaydee R. Hanson's paper, continued problems in marketing, distribution and preservation of fish and long term environmental policies that have been detrimental to the development of the fresh water capture fishing industry.

The acceleration of agricultural output growth has led to significant changes in the pattern of China's foreign trade. Because of the growing level of imports of wheat, coarse grains, soybeans, edible vegetable oils, and cotton, an ever larger share of China's export earnings in the 1970s was being absorbed by agricultural imports. Indeed imports continued to grow in the first two years of agricultural reform in large measure because the initially modest increase in the sales of cereals by peasants to the government led to soaring wheat imports in 1979–81. As pointed out in Frederick Surls' paper, in 1980 China became a net importer of agricultural products for the first time in almost two decades. But since 1980 this situation has been rapidly turned around. Wheat imports have fallen by five million metric tons and China has become a net exporter of coarse grains, soybeans, and raw cotton. The result is an estimated improvement in China's balance of trade in agricultural products of almost 4 billion U.S. dollars between 1980 and 1984, when China registered the largest agricultural trade surplus in 35 years. The results have substantially reduced the growth of trade between the

United States and China as U.S. farm exports fell by an estimated 1.7 billion U.S. dollars.

The unprecedented growth of agricultural output also has been accompanied by substantial growth in real farm income. According to Chinese survey data average per capita farm income in current prices rose from 134 yuan in 1978 to 310 yuan in 1983. While these data, because they value in kind income at rising prices, substantially overstate income growth, there is little doubt that the real gains achieved have been very substantial.[4] The gains derive not only from the growth of farm output, discussed above, and the higher prices peasants currently receive for their products, discussed by Terry Sicular in her paper, but also from the substantial expansion of rural non-farm employment and income. Collective non-agricultural production flourished in many regions of rural China during the Cultural Revolution years and the relaxation of constraints on private production and commerce in the late 1970s has led to a surge in non-farm rural income in recent years. The estimates of Lee Travers in this section place peasant non-agricultural employment in 1983 at 67 million out of a rural collective labor force of under 350 million. Official data show that these activities and private farming and livestock raising generated an income of about 112 yuan per peasant in 1983, up by 76 yuan or more than 200 percent since 1978.[5] This rapid growth of income has led to the dramatic changes in rural consumption shown in the paper by Frederic Surls.

Most interestingly, the noticeable acceleration in the growth of agriculture, and consequently of peasant income, has been achieved despite an apparent reduction in both the rate of and absolute amount of investment in agriculture. State budgetary expenditures for agriculture, state investment in agriculture, state bank credit extended for agricultural loans, and collective (non-state) investment, all shown in Table 2, have declined since the late 1970s. State budgetary outlays for current expenditures for agricultural purposes rose substantially in 1978 and 1979 but subsequently have fallen in absolute terms. Agriculture's share of state expenditures also evince a slight downward trend since 1979 despite a Central Committee resolution, passed in draft form in late 1978 calling for their share to rise by a percentage point to constitute 8 percent of the budget.[6] State investment in agriculture (which includes forestry and water conservancy investment as well) has fallen even more sharply. Investment outlays in 1981 and 1982, for example, were down more than 50 percent compared with the average of 1978–1979. Investment in water projects in 1981–83 was down by 50 percent compared with the average of 1976–80.[7] More significantly, since agricultural output value has grown sharply, the declining level of investment represents an even more sharply declining rate of investment in agriculture. The decline in state budgetary expenditures has been partially offset by an increase in credit extended to agriculture by the People's Bank. Net increases in credit outstanding, which are a convenient indicator of the extent to which credit provides investment funds for agricultural use, show a substantial year-to-year variation. The flow of credit (shown in Table 2) did increase after 1978 but at a sharply decreasing rate beginning in 1981.

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[4] Nicholas R. Lardy,"Consumption and Living Standards in China, 1978–1983," *The China Quarterly*, no. 100 (December 1984), pp. 860–862.

[5] State Statistical Bureau, "Statistical Yearbook of China 1984" (Peking: Statistical Publishing House, 1984), p. 471.

[6] Chinese Communist Party Central Committee, "Decision on some problems in accelerating agricultural development," "New China Semi-Monthly," No. 10, 1979, pp. 140–150.

[7] "Chinese Statistical Yearbook 1983," pp. 324–325.

TABLE 2.—FINANCIAL FLOWS TO AGRICULTURE, 1976–1983

Year	State Budgetary Outlays for Agriculture				Net increases in bank credit [3] (billions of yuan)	Internal collective farm investment (billions of yuan)
	Current Expenditures [1]		Investment [2]			
	Billions of yuan	Percent of budget	Billions of yuan	Percent of investment		
1976	4.60	5.7	4.00	12.8	1.79	6.444
1977	5.07	6.0	3.60	12.0	0.79	6.324
1978	7.70	6.9	5.11	11.3	1.72	7.484
1979	9.02	7.1	6.24	12.1	2.12	8.711
1980	8.21	6.8	4.86	11.6	3.52	5.575
1981	6.21	5.6	2.46	7.4	1.67	4.840
1982	8.00	6.9	2.95	9.5	2.27	(5)
1983	[4] 7.75	[4] 6.1	(5)	(5)	2.42	(5)

[1] Non-investment expenditures for water conservancy, state farms, fisheries, and meteorology and support for communes and brigades. Excludes expenditures for rural relief.

[2] Funds expended for investment in state-owned units, excludes collective and private investment.

[3] Includes agricultural loans that have been exempted from repayment.

[4] Budgeted amount.

[5] Not available.

Sources: State Statistical Bureau, "Chinese Statistical Yearbook 1983" (Peking: Statistical Publishing House, 1983), pp. 324–325, 453, 209. "Statistical Yearbook of China 1984," p. 424. Wang Bingqian, "Report on the Implementation of the State Budget for 1982 and the Draft State Budget for 1983 (excerpts)," Beijing Review, No. 3, 1983, pp. 14, 16.

Finally one must examine the flow of funds within the collective farm sector to see whether or not there has been a significant offsetting increase in the magnitude of farm income allocated for agricultural investment purposes, as opposed to being paid to the state in the form of taxes or to individuals in the form of personal income, what the Chinese refer to as distributed collective income. These funds too, referred to as "internal collective accumulation" have fallen dramatically since the decollectivization of agriculture. By 1981, funds for internal reinvestment were only 55 percent of the peak level of 1979 and were even below the years of 1976–78, prior to the reform of agricultural prices.[8]

The increasing decollectivization of agriculture since 1979 or 1980, however, gives rise to the possibility that private farm investment has increased, offsetting the decline in state budgetary expenditures and in collective outlays. Since current farm income derived both from collective sources and from private sources has risen substantially in recent years, and because of a renewed emphasis on private production, it might be expected that a large share of this incremental income would be allocated by farm households for agricultural investment. Indeed, reports of the demand for privately owned hand tools, draft animals, and even walking tractors suggest that rural households are increasingly undertaking investment that prior to decollectivization would have been undertaken by teams or brigades. Yet, given the past instability of ownership arrangements for productive assets in rural China, the incentives for investments requiring a period of more than a year to recoup one's capital investment and profit must be limited. Indeed the great bulk of rural private investment in recent years appears to have been in housing, which is not surprising. Private housing is the only significant rural asset for which the ownership rights have not been repeatedly altered in the last three or more decades. Even during the excesses of the Great Leap Forward when significant amounts of private household goods were collectivized and private plots eliminated and during the Cultural Revolution, when private ownership again came under attack as a 'remnant of capitalism', rural private housing remained sacrosanct. Most critically it has always been inheritable and thus a major object of private investment. In 1982 and 1983, for example, private housing investment in rural areas was 15.7 and 21.4 billion yuan, respectively, many times state investment in agriculture.[9]

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[8] Data on collective investment funds retained by basic accounting units in rural areas haven't been published for the years since 1981. The only data now available, total investment in fixed assets by collectively owned rural units, is not comparable since it is based on a different concept of investment and, more importantly, includes not only investment undertaken by collective units for agricultural purposes but also for rural industry, transportation, services, and so forth.

The need to strengthen incentives for private investment in farming has implicitly and explicitly been recognized in the evolution of state agricultural policy. For example, initially land contracts were limited to a period of from three to five years. But this led to excessive exploitation of the land as peasants sought to maximize their income from the land during the short period the land was under their control. Central Committee Document Number One of 1984 formally extended land contracts to a minimum of 15 years and allowed substantially longer contracts for land devoted to the development of fruit, forests, and other activities that have longer term pay-offs. Moreover, provisions were made for compensating peasants for land private investment and improvements in the event that contracts were transferred prior to their expiration.[10] More recently, the incentives for investment have been further enhanced by providing for inheritance of land contracts.

To recapitulate, state investment in agricultural production has slowed markedly since 1979. Announced plans for increased state expenditures for agriculture have failed to materialize while decollectivization of agriculture has resulted in a sharp curtailment of agricultural investment from collective sources. Private farm income, which has increased sharply (in part because less revenue is retained within the collective and more is distributed to collective members) appears to be allocated primarily to increased consumption and to private housing investment, rather than flowing directly into agricultural investment. As a result, the area of farmland under irrigation, the quantity of irrigated land served by mechanized pumping, and the use of tractors for land preparation, all indicators of the extent of agricultural modernization, all fell in absolute terms between 1979 and 1983, in each case reversing long term patterns of increase.[11]

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[9] State Statistical Bureau, "Chinese Statistical Abstract, 1983" (Peking: State Statistical Publishing House, 1983), p. 57; "Chinese Statistical Abstract, 1984" (Peking: State Statistical Publishing House, 1984), p. 63.

[10] "The Chinese Communist Party Central Committee Circular on Rural Work in 1984," "New China Semi-Monthly" No. 6, 1984, pp. 82-86.

The achievement of accelerated growth of farm output with a lessened infusion of modern inputs suggests a substantial rise in agricultural productivity since 1978. As shown in Table 3, for major nongrain crops, the growth of unit yields in 1978-83 has ranged from 6.0 to 11.5 percent annually as compared to a range of 0 to 3.1 percent for the period 1957-1978. The growth of grain yields also has spurted markedly to more than double the rate prior to 1978.

TABLE 3.—CROP YIELDS AND YIELD GROWTH, 1957-1978 AND 1978-1983

[Tons per hectare of sown area and average annual percent increase]

Yields	Grain	Cotton	Peanuts	Rapeseed	Sugarcane
1957	1.463	0.285	1.013	0.383	38.99
1978	2.528	0.443	1.343	0.720	38.50
1983	3.396	0.763	1.795	1.168	47.61
Yield growth:					
1957-1978	2.6	2.1	1.4	3.1	0
1978-1983	6.1	11.5	6.0	10.2	4.3

Sources: State Statistical Bureau, "Statistical Yearbook of China 1984" (Peking: Statistical Publishing House, 1984), pp. 153-154.

These dramatic increases in yields may be explained by three potential factors. The first is changes in farm technology. Second, the growth of yields could be due to increased utilization of fertilizers, pesticides, and other current inputs. If the growth of yields is explained entirely by increased application of fertilizers and so forth, there would be no increase in total factor productivity, only an increase in output per unit of land. Finally, improved efficiency in the use of existing inputs could explain yield growth. In practice, all three factors have been significant but the third source, improved efficiency in the use of existing levels of resources in the farm sector, is probably the most significant.

A very impressionistic survey of farm technology suggests no startling breakthroughs that could account for the substantial spurt in yield growth for various crops shown in Table 3. Biological and mechanical technology appear to have changed little in recent years. There has, for example, been little or no increased diffusion of high yielding fertilizer-responsive varieties of rice—these had achieved a penetration of 80 percent of rice sown area as early as 1977. Similarly, hybrid corns and sorghum varieties were in widespread use prior to the late 1970s. Only in the case of cotton, where several new varieties have been introduced in recent years, does technological change appear to have been central to improved productivity.

Changes in the use of current inputs in agriculture since 1978 have shown a mixed picture but on balance have contributed significantly to growth of output. The production of pesticides has actually declined sharply since 1978. Output in 1983 was less than two thirds the level of 1978.[12] On the other hand, as shown in the paper by Bruce Stone, the use of chemical fertilizers has fully doubled between 1978 and 1983, rising from 89 to 167 kilograms per hectare of cultivated land. Particularly noticeable has been the attempt to overcome the historic overemphasis on nitrogenous fertilizer at the expense of phosphate and potash nutrients. The increases in the manufacture and use of these nutrients exceeds that of nitrogen. Since deficiencies of non-nitrogenous nutrients inhibits the output response to additional units of nitrogen, efforts to redress the imbalances among nutrient types have a particularly beneficial effect on the growth of crop output. The growth of aggregate fertilizer usage and the slightly improved balance among nutrient types undoubtedly accounts for a significant share of output and yield growth since 1978.

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[11] State Statistical Bureau, "Statistical Yearbook of China 1984" (Peking: Statistical Publishing House, 1984), p. 175.

[12] State Statistical Bureau, *Statistical Yearbook of China 1984*, p. 227.

The reorganization of existing inputs within the farm sector is the third potential explanation of productivity growth. Productivity growth has been facilitated in large measure through improved incentives provided to individual producers. Decollectivization, as shown in Frederick Crook's paper in this section, allows households to contract with teams to cultivate parcels of land. Through greater diligence and improved management they can raise their income. Productivity growth has also been raised, as Terry Sicular's paper makes clear, through a revival of specialized production. Specialization has been facilitated through a revival of private marketing as well as specific state commitments of external supplies of grain for some specialized producers of nongrain crops, notably cotton and sugarcane.[13] By the close of 1983 there were 43,515 and 4,488 farm markets in rural and urban areas, respectively, and the volume of sales in these markets reached 39 billion yuan.[14]

Although decollectivization has provided the incentives for improved productivity growth it has created three significant partially unanticipated adverse consequences. As already discussed above, peasant uncertainly regarding the long term viability of the system of land contracting to households has led to less private investment in farming than the government desires. Over the longer run it is not clear how the local labor intensive maintenance of existing irrigation systems will be sustained. Whatever the shortcomings of the collective system of the past, it did provide a mechanism for mobilizing labor for building and maintaining local water control systems.

Second, the demise of the collective system also appears to have impaired the delivery of rural social services. State funds for rural health care and primary school education have always been quite limited. Most of these programs, as well as support for indigent rural peasants, such as elderly with no surviving children, were financed by collectively accumulated welfare funds. Perhaps the new township level governments and their subordinate village committees, that are replacing communes and production brigades, respectively, throughout much of rural China will develop revenue sources to provide these services. But in the short run, significant reductions in rural social services appear to have occurred. As pointed out in Nick Eberstadt's paper, life expectancy in China appears to have declined slightly since 1978, reversing two decades of improvements. In large measure, this reflects an upturn in the infant mortality rate. Finally, rural primary school enrollment rates have dropped slightly, again reversing favorable long term trends. In part, declining enrollment rates reflect the income maximizing strategies of peasant households who recognize the substantially higher returns to labor under decentralized agriculture and have increasingly chosen to utilize their children's labor in farm and sideline activities, rather than allowing them to remain in school. But in part the decline may be due to a reduction in primary school educational expenditures previously financed by collective units.

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[13] These arrangements are discussed in detail in "Agriculture in China's Modern Economic Development" (Cambridge: Cambridge University Press, 1983), pp. 69-71, 94-95, 203-204.

[14] State Statistical Bureau, "Statistical Yearbook of China 1984", p. 363.

Third, while the higher farm quota prices the state introduced along with decollectivization have contributed significantly to greater incentives and productivity for peasant producers, the financial burden to the state of these incentives has mounted rapidly. Because a fear that passing along higher prices for vegetable oils and basic cereals to urban consumers would create "urban unrest" the state has absorbed an increasing burden of financial subsidies. The price paid by households with urban household registrations for rice and wheat has been unchanged since 1966 while the average price paid to farmers by the state for these two grains rose by 66 percent between 1966 and 1983. For vegetable oils, the situation is just as extreme. Average procurement cost has risen 85% between 1966 and 1982, while the retail ration price paid by urban households has remained unchanged.[15] As a result subsidies for cereals and oils, which averaged only 4 billion yuan annually in 1974-1978, have soared to more than 20 billion yuan by 1983.

While announcing its long term intention to raise prices paid by urban residents, in the short run the magnitude of subsidies will be controlled and possibly even reduced by scaling back prices paid to farmers. In what promises to be a reform as revolutionary as decollectivization, the state is abolishing its system of compulsory deliveries introduced over thirty years ago. Under the old system for many crops the state commercial network was committed to purchase, at relatively high incentive prices, all of the output peasants sought to sell above the so-called quota sales amount, for which the state paid a significantly lower price. Under the new system this commitment for unlimited purchase is being replaced by contracts for fixed quantities. As explained in detail in Frederick Crook's paper, the price for such deliveries will be intermediate between the former quota price and the higher incentive price. But for sales above the contracted amount the state will in general pay no more than the old quota price. In effect the marginal price paid to peasants for transactions with the state should drop by one-third for the most important commodities. Moreover, the contracted quantities planned for 1985 for major crops are substantially lower than purchases in earlier years. Since in some cases, particularly for grains, the state is likely to purchase significant amounts at the lower quota prices, the average rice received by peasants from the government for major crops appears certain to fall somewhat in 1985. The effectiveness of this new program in reducing the need for price subsidies for urban retail sales without reducing farm level production incentives, of course, is far from assured.

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[15] State Statistical Bureau "Statistical Yearbook of China 1984," p. 435. Wang Zhanzhi and Wei Yunlang, "The Changing Situation Concerning the Scissors Price Differential in the Exchange of Industrial and Agricultural Products," "Economic Research Materials" No. 15 (1980), p. 47.

LONG TERM GROWTH

The accelerated growth of agricultural output and productivity observed between 1978 and 1984 will be difficult if not impossible to sustain. Most of the gains achieved since 1978 appear to stem from a combination of increased incentives to producers arising from decollectivization, from increased specialization and commercialization, and from increased use of certain modern inputs, especially chemical fertilizers. None of these sources of growth are exhausted. As Bruce Stone's paper makes explicit, there remain substantial inefficiencies in the regional distribution of chemical fertilizers, which if overcome could raise productivity significantly. Similarly, while marketization and comparative advantage cropping have increased in recent years, further improvements in productivity might be forthcoming if constraints to marketing were eased.

But, as suggested above, the incentive efforts of the procurement reforms initiated in 1985, which entail possibly significant declines in prices received by farmers for sales to the state, are uncertain. And over the longer run growth will almost certainly depend on an increased flow of investment resources to farming. As Bruce Stone's paper shows, the large increases in the application of chemical fertilizers have led to sharply diminishing returns in many of the most high yielding regions of Chinese agriculture. Increased investments are needed to maintain the productivity of fertilizers and other current inputs at profitable levels. Increased state expenditures should be allocated in part to raising the quality of land through expanding the extent and improving the quality of water projects works, for research to develop improved seed varieties, and increasing enrollments in agricultural colleges. Investment in water projects has fallen despite significant floods in 1981 and 1983 in central China and in Sichuan. As David M. Lampton's paper points out, these floods revealed China's continued relatively low flood control standards on major inland waterways.

Similarly there is an urgent need for investments to facilitate increased marketing. China's inland waterway system, traditionally the most important carrier of agricultural products, has declined since the mid-1960s. The increased salience of a policy of local economic self-reliance led, as Lampton's paper shows, to low levels of investment in inland water transport, and insufficient expenditure for channel maintenance. Moreover the lack of effective national or even regional coordination of projects to meet competing water needs such as farmland irrigation, inland transportation, and power generation has been detrimental. Dams are built without locks or provision for transport, effectively diminishing the carrying capacity of the inland river systems. Between 1965 and 1978 the network of inland waterways fell significantly. There has been only a slight improvement in the inland water network since 1978.

Similarly, China's rural road network, which still bypasses one third of all rural villages, has improved little over the past five years. Although the inventory of trucks for agricultural use has risen dramatically, from less than 75,000 in 1978 to almost 275,000 in 1983, it is still quite small in absolute terms, about one truck per 1,300 agricultural workers. There is also a woeful shortage of storage facilities, refrigeration, and so forth. Consequently, the amount of wastage of food in handling and storage has increased significantly in recent years. Finally, there is an urgent need for the development of large private wholesaling companies to handle the increasing volumes of private market transactions in agricultural products, particularly grain.

Within China there is an ongoing debate over the sources of recent agricultural growth. Different viewpoints lead to differing assessments of what constitutes desirable state policy. One school of thought contends that the gains from further reorganization of the rural sector are almost exhausted and favors increased state investment, including increased research in basic agricultural sciences, to sustain future agricultural growth. Others, seemingly in the ascendancy, emphasize that there is still great potential for future growth of agriculture if "rural ideological and political work is strengthened" in order "to arouse peasants' enthusiasm"[16] and that if funds are necessary to modernize agriculture these must come primarily from reinvestment by rural collective enterprises and by peasant households.[17] Thus, they reject the view that future growth of agriculture is centrally dependent on state investment for agriculture. On this issue, as so many others discussed in the papers in this section, we are likely to witness further policy changes as the Chinese seek to sustain the growth of output of recent years while mitigating some of the unforeseen adverse consequences of agrarian reform.

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[16] Commentator, "The Potential of Policy Remains Quite Great, People's Daily, Oct. 2, 1983, p. 1 in Foreign Broadcast Information Service, China Report, Oct. 4, 1983, pp. K1-K2.

[17] Xinhua Commentator, "The Funds for Quadrupling the Value of Agricultural Production Must Come Mainly from Accumulation of Agriculture Itself," in FBIS China Daily Report November 15, 1984, pp. K17-K18.

CHINA'S AGRICULTURE IN THE EIGHTIES

By Frederic M. Surls*

CONTENTS

		Page
I.	Summary	336
II.	Introduction	337
III.	Agricultural Performance	338
	A. Crop Production	338
	B. Expansion of the Livestock Sector	341
	C. Rural Consumption of Agricultural Products	342
IV.	A New Set of Challenges	343
V.	Prospects for Growth	347
VI.	Agricultural Trade	349
	A. The Pattern of Agricultural Trade	350
	B. Trade Prospects	352

TABLES

1.	Production of Major Crops, 1978-1984	338
2.	Growth Rates of Area, Yield, and Production, 1978-1983	339
3.	Agricultural Inputs, 1978 to 1983	340
4.	Livestock Performance, 1978 to 1983	342
5.	Consumption of Major Agricultural Commodities, 1978-1983	343
6.	Value of Agricultural Trade, 1978-1984	350
7.	Trade in Major Agricultural Commodities, 1978/79-1984/85	351
8.	U.S. Agricultural Exports to China by Fiscal Year, 1978-1985	352

I. SUMMARY

China's production of crops and livestock products grew by 49 percent between 1978 and 1984. This rapid growth has contributed to substantial increases in rural incomes and to marked changes in rural diets. The growth of output has been caused by a combination of large increases in fertilizer supplies and new policies which have led to major increases in the efficiency of agriculture. However, the successes that agriculture has enjoyed have created an entirely new set of problems for China's planners. In particular, the traditional Government-dominated marketing system has been unable to efficiently handle the large increase in farm marketings. Severe regional surpluses of many products, particularly cotton, rice, and coarse grains, have accumulated. Given the inadequate domestic transportation system, exports have been the only feasible means of disposal of many of these surpluses.

Government policies for the remainder of the decade are shifting to more selective growth and changing the marketing system for agricultural products. The Government is restricting the range and amount of farm commodities that it purchases and is easing restrictions on alternative marketing channels. At the same time it is changing pricing practices in ways that will likely mean lower prices for farmers, who will now be operating in an environment of greater risk and uncertainty.

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The extensive changes that are now underway make projections of future growth subject to a wide margin of error. But partly because of the problems of transition to the new system, growth during the remainder of the decade is expected to be considerably slower than in the recent past. Overall agricultural output will probable increase by about 3 percent annually. The livestock sector, which will have a high priority in coming years, will grow at somewhat faster rates—perhaps 4 to 5 percent annually.

The rapid changes in agriculture over the last 6 years have had an important impact on China's trade. Wheat imports have fallen and China has become a growing exporter of coarse grains, cotton, soybeans, and soybean meal. The drop in imports together with the rise in exports has restored China's traditional surplus in agricultural trade and has cut U.S. exports of farm products to China from the peak of $2.2 billion registered in fiscal 1981 to only $239 million in 1985. Despite slowing production growth, China's agricultural imports are unlikely to increase dramatically during the remainder of this decade, and China will continue to export substantial amounts of cotton.

II. INTRODUCTION

The performance of China's agriculture over the last 7 years has far surpassed the expectations of both western analysts and China's planners. Growth has regularly exceeded planned levels and, at least until 1985, showed very little sign of slowing.

This growth is transforming rural China. After two decades of stagnation, rural areas are experiencing substantial economic growth and average incomes have more than doubled. Consumption of food has risen sharply, and rural diets are beginning to show increasing diversity and a rising share of higher-quality foods such as meat, eggs, and fruit. Expenditures on consumer durables are up sharply, and rural housing construction is proceeding at a rapid pace. Along with growth in production and changes in consumption, the very nature of agriculture is beginning to change. Households, rather than collectives, are now the most important unit in the countryside, the profit motive is playing a much greater role while the importance of plans is declining, and a rapidly rising share of output is being produced for the market rather than for on-farm consumption.

The changes which are having such a profound impact on China's rural residents have also had important implications for American farmers. Grain imports have fallen one third and corn exports now exceed 4 million tons. China, the world's largest cotton importer 5 years ago, is now exporting over 1 million bales of cotton annually. Imports of soybeans and soybean oil have ceased and exports of soybeans and soybean meal have risen. The falloff in imports reduced U.S. agricultural exports to China from $2.2 billion in fiscal year 1981 to $239 million during fiscal 1985, and no significant near-term recovery is likely. China is now a competitor in many of the products it was recently importing.

While progress to date has been very rapid, the future pace of growth is difficult to project with any certainty. To a very large extent the gains registered over the last 6 years have come from exploitation of resources which were severely underutilized because of wasteful farm policies, and from large increases in the supply of fertilizer. With the easiest production gains behind them, China's leadership now faces the much more difficult challenge of continuing to build the institutions and provide the resources that will generate sustained growth in coming years.

III. AGRICULTURAL PERFORMANCE

Total output of crops and livestock grew by 49 percent between 1978 and 1984, a gain of nearly 39 percent in per capita terms (table 1). In contrast, the previous two decades had seen very little growth in per capita output.[1] Recent growth has been a broad advance to which output of nearly all crops and livestock products contributed. Moreover, growth has been steady, with no down years since 1977.

TABLE 1—PRODUCTION OF MAJOR CROPS, 1978–1984

[In million tons]

Commodity	1978	1979	1980	1981	1982	1983	1984	Percentage increase 1978–1984
Wheat	53.8	62.7	55.2	59.6	68.5	81.4	87.8	63.2
Rice	136.9	143.8	139.9	144.0	161.6	168.9	178.3	30.2
Coarse grains	79.1	83.1	84.2	80.8	82.7	92.7	96.4	21.9
Cotton	2.2	2.2	2.7	3.0	3.6	4.6	6.3	186.4
Oilseeds [1]	15.8	16.8	19.4	23.6	26.0	27.2	31.0	89.0
Tobacco, flue-cured	1.1	0.8	0.7	1.3	1.8	1.2	1.5	36.4
Sugar crops [2]	23.8	24.6	29.1	36.0	43.6	40.3	47.8	100.8
Total agricultural output [3]	105.7	117.4	119.0	125.3	138.5	149.2	163.3	54.5

[1] Soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed.

[2] Sugarcane and sugar beets.

[3] 1976 to 1978 average equals 100.

Source: Various State Statistical Bureau publications. Much of these data are presented in Carolyn L. Whitton, "Agricultural Statistics of the People's Republic of China, 1949–82," Economic Research Service, U.S. Department of Agriculture, Statistical Bulletin No. 714, October 1984.

A. CROP PRODUCTION

Crop output rose by 46 percent between 1978 and 1984. Since crop area dropped because of withdrawal of land from cultivation and less multiple cropping, output has grown because of steadily rising yields. Increases in crop yields have been striking. Yields of wheat, cotton, rapeseed, sugar beets, and jute and hemp have grown by more than 50 percent, or at average annual rates of 8 percent or more. Of the crops for which China reports data, only potato and sesame yields rose by less than 3 percent annually. Acreage shifts have also affected production. Area of many of the major cash crops rose as farmers cut back on plantings of grain, potatoes, and green manure crops (table 2).

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[1] Total agricultural output in this paper refer to the China component of the USDA production indices. This is an index of the value of output of crops and livestock products for which complete historical production series are available. Output is valued in average prices for 1976 to 1978. The latest published version is Economic Research Service, *World Indices of Agricultural and Food Production*, SB710, July 1984.

TABLE 2.—GROWTH RATE OF AREA, YIELD, AND PRODUCTION 1978 TO 1983

[Percent per year]

Crop	Production	Area	Yield
Grain:			
Wheat	8.6	−.1	8.7
Rice	4.3	−.8	5.1
Coarse grain	3.3	−1.8	5.2
Potatoes	−1.6	−4.4	2.9
Oilseeds:			
Soybeans	5.2	1.2	4.0
Peanuts	10.7	4.5	6.0
Rapeseed	18.1	7.1	10.2
Sesame	1.6	4.3	−2.6
Cotton	16.4	4.5	11.4
Sugarcane	8.1	3.6	4.4
Sugar beets	27.7	10.4	15.6
Tobacco, flue-cured	1.8	−1.4	3.2
Jute and hemp	−1.3	−11.2	11.2

The reasons for China's successes have been widely reported. The major sources of growth include excess capacity, more incentives, better Government planning, more inputs, and technological change. The separate contributions of policy changes, increases in inputs, and technology cannot be isolated. But all were clearly important.[2]

By the late seventies, nearly two decades of poor policy had created indifference on the part of farmers, misuse of land, fertilizer and other inputs, and stagnant or declining productivity. China's agriculture was producing far below its productive capacity. A wholesale change in farm policies which began in 1979 was able to quickly tap this reservoir of potential output. A major round of increases in the prices the government pays farmers gave a big boost to producer incentives. Between 1978 and 1983, the average price paid farmers rose by nearly 50 percent. The impact of price increases was amplified by the progressive breakup of collective production systems, as land was parceled out to households and farmers were allowed to retain or freely dispose of production over and above the amounts set in the annual contracts which farmers now sign with the government. This links farm income directly with production, unlike the old system in which households received a share of collective income which was largely independent of how hard they worked.[3]

It is important to remember that China's new farm system still retains important elements of government planning. The contracts which farmers sign are a new form of plan, and what they produce and how they use their land is still strongly influenced by government requirements. But the new system does give farmers more freedom, and the government is gradually reducing the coverage of its plans. What planning does remain in the system is simply better than it was 7 years ago. Rather than stressing local self-sufficiency, planners are now encouraging specialization and adapting cropping to local conditions. This shift has added significantly to efficiency. The move toward specialization has also seen the emergence of specialized households, which concentrate on the production of one item. There are now 25 million of these commercial family farms. This represents 14 percent of all farm families.

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[2] See the articles by Nicholas R. Lardy and Bruce Stone in this volume and Nicholas R. Lardy, "Agricultural in China's Modern Economic Development," New York: Cambridge University Press, 1983.

[3] See the article by Fredrick W. Crook in this volume for an analysis of the structural changes in agricultural.

The growth of output has also been aided by a rapid rise in fertilizer availability. Large modern nitrogen fertilizer plants bought from the United States, Japan, and Europe in the mid-seventies sharply increased nitrogen fertilizer production capacity. This additional capacity came on stream in the late seventies. In addition, new domestically-designed plants have been added, and fertilizer imports are up sharply. As a result, fertilizer consumption rose from 8.8 million tons in 1978 to 16.6 million tons in 1983 (table 3).

Increases in other input supplies have been much more selective. Tractor numbers have continued to rise, although more slowly than in the past and much of the increase in tractor stocks is being used to improve transportation, a critical element in the growing commercialization of the countryside. This shift in machine usage is evident in the data on area cultivated by machines. More freedom for farmers to allocate inputs resulted in a 17 percent decline in machine cultivated acreage between 1978 and 1983.

TABLE 3.—AGRICULTURAL INPUTS, 1978–83

Item	Unit	1978	1979	1980	1981	1982	1983
Draft animals	Million	50.2	50.3	50.9	54.7	58.3	61.3
Chemical fertilizer use [1]	Million	8.8	10.9	12.7	13.3	15.1	16.6
Chemical pesticides	1,000 tons	533	537	537	484	457	331
Rural electrical consumption [2]	Billion kilowatt hours	25.3	28.3	32.1	37.0	39.7	43.5
Agricultural machinery	Million horse power	159.8	181.9	200.5	213.2	225.9	245.0
Machine numbers:							
Tractors, large and medium [3]	Thousand	557	667	745	792	812	841
Tractors, small [3]	Thousand	1,373	1,671	1,874	2,037	2,287	2,750
Combine-harvesters	Thousand	19	23	27	31	34	36
Trucks for agricultural use	Thousand	74	97	138	175	206	275

[1] Nutrient weight.
[2] Includes electrical use by households and in production but excludes consumption by state-owned factories located in rural areas.
[3] Tractors of less than 20 HP are classified as small.

Source: State Statistical Bureau data.

The expansion of irrigation has also stopped as irrigated area has stabilized at about 46 percent of total cultivated area. The government has reduced investment in large-scale irrigation projects, and has shifted to encouraging localities to improve the efficiency of existing systems. But the reduced importance of the collective sector may also be having an impact on local investment in irrigation.

Finally, technological change has also had an impact on the growth of farm output over the last 6 years. While the effect is difficult to measure, the new incentive systems have certainly increased the pace of introduction of new technology and better farm management practices. With incomes now tied to output, the potential rewards from innovation have increased. Over the last several years farmers have reportedly been eagerly seeking assistance from local extension specialists and technicians and the demand for technical publications has increased dramatically.

This new receptiveness has almost certainly contributed to the rapid introduction of new varieties, most noticeably of cotton and rice. Higher yielding cotton varieties have spread widely throughout northern China, where other yield-increasing innovations such as the use of plastic sheeting for mulch have also been widely adopted.

B. EXPANSION OF THE LIVESTOCK SECTOR

Livestock raising has been and remains a backward sector of Chinese agriculture, accounting for only a small share of farm sector output. Livestock production has grown more rapidly than crop output, and meat production in 1983 was 64 percent above the 1978 level (table 4). Pork contributed most of the increase, and the gains in output were large enough to permit the lifting of pork rationing in the early eighties.[4]

Other parts of the livestock sector, most notably poultry raising and dairy, have also experienced rapid growth. While time series data are unavailable, production of poultry meat and eggs are up sharply.[5] Higher incomes have also stimulated dairy production, and total milk production rose by 136 percent between 1978 and 1983 (table 4).

As has been the case with crop production, the growth of output has been caused by a combination of new policies and improved input supplies. Past encouragement of livestock numbers as the measure of success of livestock programs has given way to emphasis on livestock product production. Producer incentives have improved as households have assumed a growing share of the responsibility for livestock raising, particularly in finishing hogs for slaughter. Government procurement prices for livestock were raised sharply in 1979 along with the increases in prices of other farm products. Along with better incentives, improved feed supplies because of the large increases in grain and oilseed production have also made a major contribution to the growth of livestock output. In the case of pork production, for instance, inventory numbers have declined slightly. Output gains came from improved nutrition, which means animals reach market weight sooner and meat per hog increases.

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[4] A more extensive discussion of the livestock sector can be found in Francis C. Tuan, "China's Livestock Sector: Recent Developments and Prospects for the Eighties," Economic Research Service, "China: Review of 1982 and Outlook for 1983," Supplement 6 to WAS-31, June 1983, pp. 12-20.

[5] This is evident from the consumption data presented in table 5.

TABLE 4.—LIVESTOCK PERFORMANCE, 1978–83

Crop	1978	1979	1980	1981	1982	1983	1984
Yearend inventory (millions):							
Hogs	203.3	319.7	305.4	293.7	300.8	238.5	306.8
Cattle	70.7	71.4	71.7	73.3	76.1	78.1	82.1
Sheep and goats	169.9	183.1	187.3	187.7	181.8	167.0	158.4
Annual slaughter (millions):							
Hogs	161.1	187.7	198.6	195.0	200.4	206.6	220.5
Cattle	NA	3.0	3.3	3.0	3.1	3.5	NA
Sheep and goats	NA	35.4	42.4	44.8	48.7	49.2	NA
Slaughter rate (percent):							
Hogs	55.2	62.3	62.1	63.8	68.3	68.7	73.8
Cattle	NA	4.2	4.7	4.2	4.2	4.6	NA
Sheep and goats	NA	20.8	23.2	23.9	26.0	27.1	NA
Average meat per animal (kilograms):							
Hogs	NA	53.4	59.8	61.0	63.5	63.7	NA
Cattle	NA	77.4	80.9	82.4	85.8	90.7	NA
Sheep and goats	NA	10.7	10.5	10.6	10.7	11.1	NA
Meat production, total (thousand tons)	8,560	10,624	12,054	12,609	13,508	14,021	15,406
Pork	7,890	10,014	11,314	11,884	12,718	13,161	NA
Beef	310	230	269	249	266	315	NA
Mutton	360	380	445	476	524	545	NA
Milk production, total (thousand tons)	971	1,307	1,367	1,549	1,959	2,295	NA
Cow milk	883	1,070	1,141	1,291	1,618	1,845	2,210

Note: NA indicates not available.

Source: Adopted from material presented in Francis C. Tuan, "China's Livestock Sector" (Economic Research Service, forthcoming).

The past 6 years have also seen the beginning of modernization of the livestock sector. While most livestock raising remains a small-scale household sideline activity, recent policies have encouraged households to specialize in livestock production. This has meant a growing number of small- and medium-scale hog and poultry operations run by households. These households raise several times the number of animals normally raised by households and must rely to a large extent on purchased feed. In addition to these, a limited number of large-scale confined operations run by the collective and State sectors have been established near large cities, in several cases as part of joint ventures with foreign investors. These operations service the urban areas and export markets. While the non-traditional forms of production—specialized households and large scale facilities—currently account for only a small share of output, they will be of increasing importance in the future and their development has major implications for the growth of feed demand.

C. RURAL CONSUMPTION OF AGRICULTURAL PRODUCTS

Rising farm production and higher incomes have led to major changes in the level and composition of rural consumption. Consumption expenditures on food increased by nearly 90 percent between 1978 and 1983. But incomes increased by an even greater margin, and the share of food in total consumption expenditures by rural households dropped from 68 percent in 1978 to 59 percent in 1983.[6]

The composition of rural diets has changed markedly. Consumption of grain and vegetables, the main staples of the Chinese diet, has grown very little, while consumption of edible oil, livestock products, sugar, and alcoholic beverages is up sharply (table 5).

TABLE 5.—RURAL CONSUMPTION OF MAJOR AGRICULTURAL COMMODITIES, 1978 AND 1983

	Unit	1978	1983
Grain:			
Total	Kilogram	248.00	260.00
Fine grain	Kilogram	122.50	196.05
Vegetables	Kilogram	141.50	131.00
Edible oil	Kilogram	1.97	3.53
Meat, red	Kilogram	5.76	9.97
Meat, poultry	Kilogram	.25	.82
Eggs	Kilogram	.80	1.57
Seafood	Kilogram	.84	1.59
Sugar	Kilogram	.73	1.26
Alcoholic beverages	Kilogram	1.22	3.20
Cotton cloth	Meters	5.63	3.18
Synthetic fiber cloth	Meters	.41	2.34

Source: "Zhongguo Tongji Nianjian 1984" (1984 Statistical Yearbook), Beijing: Zhongguo Tongji Chubau She, 1984, p. 474.

Total grain consumption only increased by 4.8 percent between 1978 and 1983, but consumption of high-quality grains such as wheat and rice rose by 60 percent as farmers sharply reduced consumption of corn, sorghum, millet, and potatoes. Red meat consumption rose by 73 percent and consumption of poultry meat has tripled. Despite these increases, however, rural consumption still lags well behind urban consumption, and consumption of preferred foodstuffs such as livestock products is still very small compared to U.S. standards. Average per capita rural consumption in 1983 still amounted to only 7 ounces of red meat and one-half ounce of poultry meat per week, and one egg every two weeks. The diet has begun to change, but these changes still have a long way to go.

IV. A NEW SET OF CHALLENGES

Despite the momentous changes of the past 6 years, the reforms in agriculture are just beginning. The large increases in production have created an entirely new set of strains on the economy, strains that require even more basic changes if the momentum of growth is to be maintained. The agricultural reforms can be thought of as involving 2 stages. In the first stage, which extended through 1983, policy was primarily directed toward raising aggregate production, with little regard for the product mix, the marketing of farm products, or the structure of consumer demand. Fuller use of resources and large increases in fertilizer supplies permitted increases in the output of all farm commodities and large excess demand for most products meant that increases in production could be readily absorbed. In this stage, agriculture continued to be supply-oriented with little attention to questions of consumer demand or marketing.

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[6] For more details on rural income see Frederic M. Surls, "Dramatic Growth of Rural Income," in Economic Research Service," China Outlook and Situation Report," RS-84-8, June 1984, pp. 15-17.

With the rapid growth of production, however, surpluses and local over-production of certain commodities began to emerge. The Government monopoly on purchases of major agricultural products, together with a formal commitment to purchase all quantities of most products offered for sale at prices substantially above retail prices led to growing stockpiles of many commodities and steadily rising Government subsidies to the commercial system. In some cases, the government procurement system has been unable to purchase the volume of goods offered for sale, leading to dissatisfied producers and reduced producer incentives.

At the same time, demand has been assuming growing importance in the economy. The large increases is incomes have meant that discretionary spending has grown in importance and consumers have become more choosy and less willing to take whatever is available in the marketplace. For example, consumers want lean pork while farmers continue to market traditional fatty breeds of hogs, and there are shortages of high quality rice and excess stocks of lower grade and less preferred varieties. This mismatch between production and demand has added to the problem of unsold goods and growing stocks in the state commercial system.

Both of these problems are symptomatic of major shortcomings in China's agricultural system. The traditional system of Government-dominated commerce was adequate for a supply oriented economy characterized by excess demand for many commodities, a low level of commercialization, limited interregional transfers, limited discretionary purchasing power, and a major emphasis on delivery of basic consumer goods with little concern for quality. The system is poorly suited for an economy in which consumer preference plays an increasingly important role. Unless the marketing system changes, producer incentives will be stifled, consumer dissatisfaction will grow, and budget subsidies will consume a steadily rising share of government revenues.

To deal with these problems, China has now entered the second stage of the agricultural reform program—creating a new agricultural marketing system and expanding the role of prices and market forces. This phase will present even greater challenges to China's leadership, and will be a great deal more difficult to implement than were the first-stage reforms.

The main elements of the new stage of reforms include reducing the role of government commerce, a wide variety of efforts to improve the marketing infrastructure, and changes in prices of agricultural products. Many of these changes are just beginning, and others are still under discussion, so the shape of the marketing system that will finally emerge cannot yet be fully envisioned. But the new system appears to be headed toward a fundamental change in the environment in which agricultural producers operate—the creation of a system in which the Government commercial sytem is no longer the sole buyer of most farm production at fixed prices and where farmers must deal with a greater level of risk. In the new system, while the government will continue to have an important impact on production decisions through both purchase contracts at fixed prices and purchases at negotiated prices, a significant and growing share of output will be subject to market forces.

The main thrust of the reform is to cut back on the role of the Government commercial system and allow a greater share of transactions to move through other channels—free markets or direct negotiations between producers and purchasers. The basic approach is to cut the number of commodities and restrict the amount that the government will buy under contracts with producers at fixed prices. Sales over and above contracted amounts can be made to the Government commercial agencies at negotiated prices, to end users such as food processing factories, or on the free market. The critical element in the reform is that purchases by the Government commercial system over and above the amounts specified in the annual contracts signed with producers will be at the option of the commercial system. The government is trying to move out of the role of buyer of last resort where, until now, it has been committed to purchasing all products offered for sale at fixed prices that are highly favorable to farmers.

Together with these limitations on purchasing, the government is also moving to restrict its role as supplier of food to the non-agricutural population at low prices. For example, while people are now free to leave the farm and move into villages in rural areas, they must buy their grain at market prices. They are ineligible for rations from the Government commercial system at low ration prices.

While cutting back on its direct role in the purchase and sale of farm products, the Government is also moving to improve the marketing infrastructure and ease restrictions on alternative marketing channels. Restrictions on shipments of goods across county and provincial boundaries have been eased, a growing range of wholesale markets serving both private and collective commerce are being established, and new publications and other methods for expanding and speeding the flow of market information are being established. In addition, the government is investing in expanding storage, processing, and transportation facilities.

Finally, substantial changes are underway in the pricing system. The price reforms involve

- stopping the escalation of purchase prices that the Government pays and setting the stage for lower average prices for farmers;
- increasing quality differentials between different grades of individual commodities;
- easing government restrictions on free market prices; and
- raising retail prices of farm commodities.

These are the basic elements of the reform program. How far and how fast the government will move is not entirely clear. But major changes are already underway. In the case of cotton, the 1985 procurement quota has been cut to 4.25 million tons, 32 percent below the 1984 production level. More importantly, the government will no longer guarantee to purchase cotton in excess of the amounts set in the contracts signed with cotton-producing households. Since the government has, until now, purchased as much as 97 percent of the crop, farmers now face severe difficulty in marketing excess production and the likelihood of a substantially lower price for this output.

This change in procurement policy was preceded in 1984 by a significant change in cotton procurement pricing. The pricing system instituted in 1984 imposed a uniform price for cotton sales to the Government, abolishing the old system in which procurement quotas were paid for at one price and all sales in excess of quotas brought a 30 percent premium. This system put an end to the progressive escalation of the average procurement price as the above-quota share increased and also effectively reduced the price farmers received for above quota sales.[7]

The changes in cotton purchasing and pricing are forerunners of modifications in the grain procurement system that are now underway. The Government is now apparently restricting its contracts for grain purchases to wheat, rice, and corn, although other types of grain will also be purchased as required.[8] Of potentially greater importance, Government grain purchase contracts in 1985 will apparently be limited to 75 to 80 million tons, compared to total purchases of over 100 million tons in the 1984/85 grain marketing year (April/March).[9] Farmers will have to sell grain in excess of what is set in their contracts at market prices.

In addition, the structure of procurement prices will be altered so that contracted amounts of grain will all be sold at a single price. The new price will be an average of 30 percent of the old quota price and 70 percent of the above quota price. The price received for amounts in excess of the contracted amount will be determined by the market.

The change in grain procurement and pricing is less comprehensive than the changes for cotton. The Government will still purchase grain in exess of the contracted amounts and still stands ready to purchase all excess grain offered for sale at the old quota price. So the major change for grain appears to be a lower price for farmers.[10]

The effect of the new pricing system can be seen as follows (indices with old quota price equal 100):

Old quota price	100
Old above-quota price	150
New uniform purchase price	135
New floor purchase price	100

In the extreme case where there is excess grain on the market, the Government will still purchase the grain but at a price which could fall as low as the old quota price. In this case, the price the farmer can expect to receive for increases in output has fallen by 33 percent (from 150 to 100).

While these changes offer a great deal in terms of budget savings and eventual gains in efficiency for agriculture, they also carry severe short-term risks and the possible dampening of farmer incentives as the role of markets increases. The current combination of local overproduction of many commodities and an inadequate transportation system that restricts the movement of commodities out of surplus areas presents potential problems for producers when production in excess of the amounts contracted for by the Government is thrown on the market. The expected price for above-contract production of commodities that are in surplus will fall, in some cases substantially. In some areas there may not be a profitable alternative crop to which producers can shift. As a result, agricultural producer incentives could be curtailed.

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[7] For a more complete discussion of the reforms in cotton pricing see Economic Research Service, "China Outlook and Situation Report." RS-84-8, June 1984, p. 10.

[8] Zhongguo Nongmin Bao (China Peasant Daily), 13 Dec., 1984.

[9] China Daily (CD) 1 Jan. 1985, p. 1 and 2 Feb. 1985, p. 1.

[10] Zhao Ziyang, "Why Relax Agricultural Price Controls?", Beijing Review, Vol. 28, No. 7 and 8, 18 Feb. 1985, p. 17.

V. PROSPECTS FOR GROWTH

Government attention during the Seventh Five Year Plan (1986–90) will shift from emphasis on growth of total output to greater stress on the composition and quality of output and to improving the linkages between producers and consumers. Priorities will include (1) more selective growth, with greater emphasis on production of subsidiary foodstuffs; (2) continued stress on livestock; and (3) improvements in the marketing infrastructure—storage, transportaton, distribution, and processing.

While the general thrust of Government priorities is clear, the new reform program adds a major element of uncertainty to production prospects. Projections of agricultural production between now and the end of the decade are subject to a wide margin of error. The structural changes of the last seven years make extrapolation from historical patterns of little value. Moreover, the agricultural system is still in flux and the new reforms add substantial amount of additional uncertainty to the prospects for growth. What happens over the next 6 years will depend in part on how new policies are implemented and on policy decisions that have yet to be made.

With these qualifications in mind, the most likely scenario is for a significant slowdown in aggregate growth. This should not be surprising. China's economy needs time to digest the growth that has already occurred and to adjust to the growing commercialization of agriculture. The next 6 years will also bring substantial shifting of area between crops as relative prices change, marketing outlets shift, and the government attempts to adjust the structure of crop production.

There are a number of reasons for expecting slower growth:

- Growth at the rates registered over the last 7 years is simply not sustainable for an extended period of time. The easiest gains from utilizing excess capacity and reducing inefficiency have already occurred;
- Fertilizer supplies will not increase as rapidly as they have during the last 6 years;
- The problems of marketing and distribution described above, coupled with curtailing government purchase guarantees, will increase producer risk and uncertainty and lower the price that farmers can expect to receive for production over and above quantities contracted for by Government. Farmers are likely to respond to the new environment by reducing input use and shifting resources to other activities. Specifically, the

growth of demand for fertilizer is likely to slow, and the intensity of labor use and multiple cropping may diminish further as the shift to alternate occupations such as commerce and construction accelerates. Basically, agriculture is faced with a reversal of the increasingly favorable producer incentives that have characterized the last 5 years; and

- The combination of market forces, new procurement policies, and growing price differences between grades will encourage farmers to pay more attention to quality and less to yields. For example changes in the grade differentials paid for cotton that are being introduced this year will likely mean larger plantings of higher-grade varieties, even at the expense of yields.

While these factors indicate a slowdown in growth, they do not mean that the outlook for agriculture is bleak. The household contract system will continue to provide a favorable environment for agriculture, technological change will continue, and input supplies will continue to grow. Combined crop and livestock output is likely to increase by about 3 percent annually through the end of the decade. While this is less than half of the growth rate registered between 1978 and 1984, it should be adequate to meet most of the growth of domestic demand for agricultural products. The balance will be provided by a slowing rate of stock accumulation and by changes in foreign trade.[11]

Crop output will probably grow by between 2 and 3 percent annually. Area will continue to decline and the growth of yields will be well below the pace registered between 1978 and 1984. Grain, the largest share of crop output, will grow relatively slowly. Rice production will show the smallest increase of the grain crops, with wheat and coarse grains registering somewhat faster growth. Area of both rice and coarse grains will drop, while wheat acreage will most likely hold at about current levels.

Output of cotton, the second largest individual component of crop production, will drop between now and the end of the decade. A substantial reduction in acreage is likely in 1985 in response to new policies to limit production, and area may well fall further in subsequent years.

Output of oilseeds—particularly peanuts, rapeseed, and soybeans—will grow at a faster rate than grains as acreage shifts to these crops from grains and cotton. Soybean production will probably grow substantially, as soybeans are a critical part of the livestock development program. One set of Chinese projections shows 1990 output reaching 14 million tons, a 40 percent increase over the 1984 production level.[12] While production may not expand this rapidly, soybeans are likely to be the fastest growing component of oilseed production.

Other components of crop output—sugar crops, fruit, and a variety of specialty crops—will register the fastest growth between now and 1990. Area of many of these crops will rise as farmers shift from grains and cotton. The critical factors determining how rapidly this shift takes place will be how their prices adjust relative to other crops and the pace of improvement in the marketing system. The short-run adjustment problems may be substantial. For example, cutbacks in the cotton purchase quotes will mean that farmers in major cotton producing areas such as Shandong will be looking to shift acreage to other crops such as wheat, fruits and vegetables, peanuts. But this adjustment process will be difficult and it is by no means certain that there will be markets for many of the crops to which farmers might be expected to shift.

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[11] See the following section for a discussion of the trade impact.

[12] Wang Hengwei, "Zhanwang Woguo Shiwu Qianjing (An Examination of Our Country's Supply and Demand Prospects for Food)," *Baike Zhishi (Encyclopedia of Knowledge)*, 1984 no. 1, pp. 3–6. I am indebted to Thomas B. Wiens for bringing this article to my attention.

Livestock product output during the remainder of the decade will grow somewhat faster than crop production—perhaps by about 5 percent annually. Red meat output will rise, but not at the rapid pace of the last 6 years. Emphasis in pork production is shifting from quantity to quality, for example, through payment of premium prices for slaughter hogs with a low proportion of fat and a high proportion of lean meat. Over the next 6 years the growth of pork output will come almost exclusively from higher slaughter rates. These gains will require substantial increases in the use of non-traditional feeds, and continuing introduction of new breeds. Native Chinese breeds have a large proportion of fat and are not suitable to modern intensive feeding practices.

Growth in beef and mutton production will come from a combination of more feeding, pasture improvement, the introduction of better breeds, and improvements in herd management practices. All of these changes will be gradual.

Dairy output is likely to continue to make substantial gains. A variety of factors will contribute to growth—more manufactured feed, continued introduction of breeds from the U.S. and other countries, and better management practices. But with dairy production now at a much higher level than 6 years ago, the growth of production will be somewhat slower than in the recent past.

Substantial advances will be made in poultry and dairy production; output of both may grow by 10 percent or more annually. Poultry and egg production will expand rapidly. Poultry meat production is receiving increasing attention as poultry's favorable conversion of grain to meat gains increasing recognition.

Development of the feed industry is a critical part of the modernization of the livestock sector. China has announced plans to expand production of mixed and compound feeds from approximately 12 million tons in 1984 to 50 million in 1990.[13] These large increases in supplies of manufactured feed will be critical to continuing rapid livestock sector expansion. Expansion of feed production is in and of itself insufficient. It will have to be combined with better breeds, improving management practices, and better slaughter, storage, processing, and distribution facilities.

VI. AGRICULTURAL TRADE

Farm successes have had a major impact on China's foreign trade and serious consequence for U.S. farmers. The unlimited promise which many saw in the Chinese market several years ago has given way to disappointment and rising concern about Chinese competitiveness. While current concerns may prove as overblown as the optimism of a few years ago, China is not likely to be a growth market for major commodities during the remainder of the decade, and will offer competition in an expanding range of products.

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[13] Francis C. Tuan, "China's Feed Industry: Recent Developments and Future Plans," in Economic Research Service, *China Outlook and Situation Report*, RS-85-8, July 1985, pp. 31-35.

A. THE PATTERN OF AGRICULTURAL TRADE

For most of the last 35 years, China has been a net exporter of farm products. As recently as 1978, agricultural exports—livestock products, fruits and vegetables, rice, and a variety of specialized products—accounted for nearly one-third of total exports. Major agricultural imports have been restricted to a rather narrow range of bulk commodities—wheat, corn, and cotton—with relatively small amounts of other items.

As part of the new agricultural policies, China sharply increased agricultural imports in the late seventies. Cotton imports soared as China moved to meet rising domestic and foreign demand for textiles. Soybean and soybean oil imports rose as the government moved to alleviate extreme shortages of edible oils. The government shifted its domestic supplies of grain to support cash crop producers and turned to imports to supply urban requirements. By 1980, China was a net importer of farm products for the first time since the 1960's (table 6).[14]

These larger imports were considered temporary. One reason for higher grain imports was to facilitate the shift of land to cotton and oilseeds and reduce imports of these crops. Policymakers indicated that they hoped grain imports could eventually be cut as well. Despite the rapid growth in trade, there was never a commitment to permanently increasing reliance on foreign sources of basic farm commodities.

The expansion of imports was short-lived. Production quickly caught up with demand and imports plateaued between 1980 and 1982, and then plummeted in 1983 and 1984. Exports, on the other hand, were stable between 1981 and 1983 and then soared in 1984, when China registered what was probably the largest agricultural trade surplus in the last 35 years (table 6).

TABLE 6.—VALUE OF AGRICULTURAL TRADE, 1978 TO 1984 [1]

[in millions of dollars]

Year	Exports		Imports		Balance	
	Food	All agriculture	Food	All agriculture	Food	All agriculture
1978	2,120	3,100	1,530	2,480	1,390	620
1979	2,520	3,600	2,150	3,450	370	150
1980	3,030	4,240	3,140	5,270	−110	−1,030
1981	3,550	4,630	3,240	5,050	310	−420
1982	3,100	4,260	3,480	4,860	−380	−600
1983	3,170	4,520	2,360	3,580	810	940

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[14] The role of agricultural imports in farm policy during the late seventies is analyzed in Frederic M. Surls, "Foreign Trade and China's Agriculture", in Randolph Barker and Radha Sinha (ed.), "The Chinese Agricultural Economy," Boulder, Colorado: Westview Press, 1982, pp. 182–198.

TABLE 6.—VALUE OF AGRICULTURAL TRADE, 1978 TO 1984 [1]—Continued

[In millions of dollars]

Year	Exports		Imports		Balance	
	Food	All agriculture	Food	All agriculture	Food	All agriculture
1984 [2]	4,000	5,500	2,100	3,200	1,900	300

[1] Both exports and imports f.o.b.
[2] ERS estimates.

Source: CIA compilations of partner country trade data, ERS estimates.

Trade data for major agriculture commodities clearly illustrate this pattern (table 7). In the early eighties, China was importing nearly 15 million tons of grain and half a million tons of soybeans, and was a leading importer of cotton. Exports of these commodities were negligible with the exception of small shipments of rice and food-use soybeans to traditional Asian markets and some exports of soybean meal, again largely to Asia. But by 1984/85, the only coarse grain being imported is barley for brewing, wheat imports have fallen by 30 percent, and soybean, soybean oil, and cotton imports have essentially ended. At the same time, China is now exporting over 4 million tons of coarse grains, soybean and soybean meal shipments are up sharply, and cotton exports have become a drag on an already depressed world cotton market.

TABLE 7.—TRADE IN MAJOR AGRICULTURAL COMMODITIES, 1978/79 TO 1984/85

[In thousands tons]

	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85 [1]
Imports:							
Wheat	7,995	8,898	13,789	13,200	13,005	9,600	7,400
Coarse grains	2,862	1,888	915	1,426	2,549	231	150
Soybeans	261	810	540	500	0	0	0
Soybean oil	125	100	73	30	10	0	10
Cotton	463	893	773	457	239	54	22
Exports:							
Coarse grains	100	100	200	200	100	450	5,150
Soybeans	274	207	143	120	185	730	1,000
Soybean meal	31	66	170	245	590	694	600
Cotton	3	3	1	0	16	174	261
Rice	1,053	1,116	583	460	550	1,168	1,000

[1] USDA estimates as of September 1985.

The most important immediate factor behind this abrupt change in trade patterns has been large stocks. In the case of cotton, 1984/85 production was nearly 60 percent above consumption and China now holds about one-half of total world cotton stocks. Stocks of coarse grains and soybeans are also high. Inadequate processing and transportation prevents these from being shifted between regions, and export has proven the only means of surplus disposal despite the obvious requirements of the livestock industry.

U.S. farm sales to China have followed this same general pattern. During fiscal 1981, China was the 3rd largest U.S. export market as sales reached $2.2 billion, (table 8). The drop in agricultural imports fell heavily on the United States, and U.S. sales have slipped to a projected $270 million this year, the lowest level of shipments since fiscal 1978. To be sure other factors—the dispute over U.S. textile imports from China and strong competitive pressures from other exporters—have also had their effect on U.S. sales. But the main factor has been the success of China's agriculture.

TABLE 8.—U.S. AGRICULTURAL EXPORTS TO CHINA BY FISCAL YEAR, 1978 TO 1985

[In millions of dollars]

Year [1]	Wheat	Corn	Cotton	Soybeans	Other	Total
1978	133.8	—	150.9	14.4	69.5	370.1
1979	357.0	291.6	193.5	37.8	37.3	917.2
1980	691.8	225.5	754.5	200.7	84.6	1957.1
1981	1402.2	108.9	431.4	154.7	36.8	2184.0
1982	1268.1	138.7	292.4	95.3	24.6	1819.2
1983	285.4	250.1	3.3	—	7.4	546.2
1984	673.9	—	4.7	—	13.7	692.3
1985 [2]	183.1	—	1.7	—	54.1	238.9

— indicates none or negligible. N.A. indicates not separately estimated.

[1] Year ending September 30 of the year listed.

[2] USDA estimate.

B. TRADE PROSPECTS

Uncertainty about the size of stocks, the future growth of production, and the future pace of improvement in the domestic transportation system make trade projections subject to a wide margin of error. But, barring a major crop failure, China is likely to prove a disappointing market for the next several years and will continue to offer competition in a number of markets.

Grain.—Consumption of wheat will continue to grow rapidly. Consumer preferences are shifting toward wheat products. New mills which produce higher grades of flour will also increase the amount of wheat required to produce a given amount of flour. Strong demand growth, coupled with a slowing rate of increase of production, makes it likely that import levels will begin to trend upward again in the latter part of the decade, although high stocks may further depress imports for the next year or two.

Coarse grains prospects are much less certain. Human consumption, the major use of coarse grain, is declining as consumers shift toward wheat, rice and meat, and other non-grain food products. The livestock sector will require rising amounts of corn, but the capacity of China's system to process, distribute, and effectively utilize a rapidly growing amount of feedstuffs is limited. While the use of corn for feed will be increasing by several million tons annually, it is not likely that growth of feed requirements will substantially outstrip increases in domestic production. So corn exports may well continue, although at somewhat lower levels as stocks are reduced. Some corn may also be imported for use in the rapidly growing livestock sector in southern China while exports from the northern producing regions continue.

Rice exports have so far remained low, but the growth of consumption is slowing as consumers shift to wheat and other products and stocks are high. China may well provide some unpleasant surprises for other rice exporters.

Soybeans and soybean products.—A shortage of protein meal is one of the largest potential constraints on China's livestock development, and a growing meal deficit is likely under any feasible scenario for the growth of production of oilseed crops. Eventually, demand growth will limit export supplies and will likely lead to declining exports of soybeans and soybean meal and a resumption of imports. But the timing of this shift is impossible to predict.

Cotton.—Domestic supplies of cotton are now so far out of line with consumption that the imbalance will take years to correct. Cotton area will likely drop steadily over the next six years and production in 1990 is expected to be significantly below the 1984 level. But even if exports are at or above the current level for the remainder of the decade, stocks will not be brought down to reasonable levels until sometime in the early nineties. So China will remain a U.S. competitor in world cotton markets for some time to come.

Other agricultural products.—Part of the reason for China's push to develop both food processing and livestock is the export potential of these sectors. China is already the major supplier of livestock and livestock products to Hong Kong, and is moving to open new markets elsewhere in Asia. The country is already an important exporter of fresh and processed fruit and vegetable products and is certain to become increasingly active in international markets for these products in the future.

In sum, with the exception of wheat, the prospects for substantial growth of China's purchases of agricultural commodities are bleak and China will remain a competitor of the United States in markets for a number of products. Nevertheless the agricultural sector remains an important market for United States exporters. Over the long-run China may well reemerge as a significant importer of farm commodities, particularly feedstuffs. Over the next 6 years, however, the current set of agricultural priorities means that the major opportunities lie in China's growing market for breeding stock, storage equipment and technology, feed processing equipment and technology, milling equipment, and a wide range of other products and technology that are critical to plans for modernization of the agricultural marketing system. Without large imports in these areas, China's ambitious plans for modernizing and commercializing agriculture will be severely hampered.

THE REFORM OF THE COMMUNE SYSTEM AND THE RISE OF THE TOWNSHIP-COLLECTIVE-HOUSEHOLD SYSTEM

By Frederick W. Crook[*]

CONTENTS

Page
I. Introduction 354
II. The Commune System Before Reform 356
    A. Review of the Commune System, 1975–79 356
    B. Assessment of Strengths and Weaknesses of the Commune System 360
III. Main Elements of the Reform 361
    A. Incentives 362
    B. Ownership of the Means of Production 363
    C. Planning and Marketing 363
    D. Mobility of Factors of Production 364
IV. Dismantling of the Commune System and the Establishment of the Township-Collective-Household System 364
    A. Local Government 365
    B. Local Party Organizations 366
    C. State Entities 367
    D. Collective Economic Entities 367
    E. Households 369
V. Assessment and Prospects 370
    A. Assessment of Rural Reforms 370
    B. Prospects: Whither the Rural Reforms? 371
Appendix 373

I. INTRODUCTION

A. SUMMARY

China's rural economy is in the midst of a revolution—a fundamental change in the commune system is underway, and more changes likely will be made in the next few years. Substantial changes have occurred in the way: farmers are motivated to work; peasants relate to the land they cultivate; the means of production are owned; economic decisions are made; goods are marketed; labor and capital is permitted to move; and farmers set up new economic enterprises or terminate failing enterprises.

In the period from 1963–1979 the commune system consisted of four parts: commune-unit; brigade; team; and household. These four parts along with state-owned entities at the commune level were fitted into a hierarchy with the commune-unit at the top and households at the bottom of the structure. The commune system was constructed in part to control most aspects of rural life. This system provided for social order in rural areas; rural labor was mobilized to construct irrigation and road systems; social services for farmers expanded; and output from rural industrial enterprises increased. At the same time, however, a single organization pattern for rural areas; inflexible planning mechanisms; tight controls; irrational management rules; and poor production incentives reduced the growth of per capita income and agricultural output. China's leaders in late 1978 opted to abandon the commune system rather than attempt reforms.

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[*] Economic Research Service, U.S. Department of Agriculture.

The new system consists of 5 parts: local township governments; local party organizations; state owned entities; economic collectives; and households. Whereas the old commune system integrated functions into one entity, the new township-collective-household system separates government, politics, and economic functions. The use of egalitarian distribution, the labor day work payment system and emphasis on non-material incentives were scrapped and farmers are now being motivated by the prospect of earning more income. Production teams, which has been the mainstay in the old commune system, have been or are being converted to economic cooperatives which only perform limited economic functions. Households now contract with the new economic cooperatives to cultivate parcels of land, return a portion of the output to pay for collective expenses and retain the remainder as earnings. This new contract system permits households to raise income through diligent labor, to improve management, and to make better use of technology. Households are now permitted to contract for pieces of land for 15 years and are allowed to purchase tractors and farm machinery. The new system continues to have some powerful mechanisms to control economic decisions, but farmers are freer now than before to decide what goods to produce and how to produce them. Farmers also have more freedom than before to work in rural towns and to invest capital in enterprises outside the teams.

The new system boosted work incentives, encouraged farmers to reduce costs, and motivated them to take risks and enter new lines of production. Farmers responded to these incentives and since 1979 agricultural output rose sharply and the performance of the rural economy improved substantially.

At the present time there are signs that the current revolution will continue. Favorable weather, stability in top leadership positions, completion of proposed changes, successful reform of urban-industrial institutions, and continued growth of per capita income will tend to consolidate the gains made in the revolution and encourage more use of prices and market mechanisms. On the other hand, poor weather, death or incapacity of key national level leaders, rural cadre resistance to rural reforms, difficulties in implementing change in the urban-industrial sector, problems with price reforms, a slowdown or decline in per capita income, and security problems in rural areas could induce China's leaders to tighten up rural control mechanisms. Markets could be restricted, central planning could become a stronger force in decisionmaking, and teams could revise terms of contracts or revert to the use of other production responsibility systems.

China's leaders seems as determined as ever to hold to the socialist road. They probably will not abandon socialist institutions nor will they completely embrace capitalist structures and institutions. Rather they will try to find combinations of institutions which will serve their particular requirements to build an economic system with "distinctive Chinese features."

B. PURPOSE AND SOURCES

The purpose of this paper is two fold. First, the paper summarizes developments in the commune system from 1975–1979 and assesses the strengths and weaknesses in the system. Second, the paper examines the dismantling of the commune system and describes the organization and structure of the new township-collective-household system. The progress of the reform will be reviewed and the future of rural reforms will be assessed. The study is generally limited to the 10-year period from 1975 through 1984.

This paper is based on various sources of information. Statistical yearbooks published by the State Statistical Bureau and the Ministry of Agriculture provided a wealth of information on the commune system for the 1975–1982 period. Books and articles published in China, Japan, Europe, Australia, and the U.S. added valuable insights.[1] The bulk of the report is based on some 6,400 reports on commune/townships in the period from 1975–1984. These commune reports came from Chinese language newspapers and journals, translations of newspapers and radio broadcasts, trip reports, and the author's own visits to communes in 1982.

II. THE COMMUNE SYSTEM BEFORE REFORM

The commune system in the period from 1975 through 1979 had stable institutions; output from commune and brigade enterprises grew rapidly; and social services for commune members expanded. But tight controls, rigid planning mechanisms, ill-conceived management rules, a single organization pattern for rural areas, and reduced production incentives retarded growth of agricultural output and per capita income. Rather than trying to improve the commune system, China's leaders in 1978–79 decided to radically change rule institutions.

The major elements of the commune system will be described briefly. This background information will help readers understand the complex changes which occurred from 1980 to 1984 and continue in 1985. For a detailed examination of the commune system prior to the reforms see "The Commune System on the Eve of Change, 1975–1979" and consult the works of other researchers listed in the appendix.

A. A REVIEW OF THE COMMUNE SYSTEM, 1975–79

In the period 1975–79 the commune system continued to consist of four parts: commune-unit, brigade, team, and households. The size of these units and their organizational patterns paralleled corresponding units in the 1963–74 period.[2] Production teams continued to produce most of rural output, to make economic decisions, and to distribute income. Teams also owned most of the assets in the rural areas. The four parts were fitted into a hieraracy with the commune-unit at the apex and households at the base of the structure. Figure 1 depicts the structure of an average commune in this period.[3]

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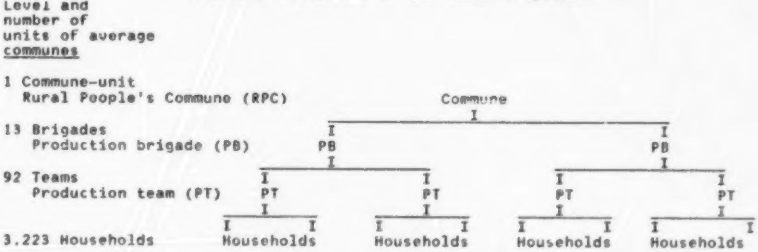
[1] See Appendix for a list of important titles consulted.
[2] Commune Report.

Ownership of land and fixed assets had three forms in rural areas. Private ownership did exist but consisted of limited amounts of fixed assets. Land and fixed assets in state farms were owned by the state—ownership by all the people. Land and fixed assets in the commune system were owned collectively by members of teams, brigades and the commune-unit.[4]

Factors of production such as labor and capital were tightly controlled and were not permitted to move freely. The government used administrative regulations and the rationing system to prevent farmers from moving to urban centers. Economic entities such as units in the commune system or commune-unit or brigade enterprises were organized or disbanded by administrative fiat. New entities did not enter and old entities did not exit the system on the basis of strict economic profitability or loss.

Figure 1--Structure of the commune system



Prior to the reforms, economic decision making in the commune system was characterized by strong central controls. These control mechanisms passed orders from Beijing through provincial and county centers to the commune. These orders specified what crops should be produced and marketed. Local self-sufficiency was an important principle embedded in the planning system. Units in the commune system struggled to provide their own basic requirements from resources within their boundaries.[5]

A large part of the output generated by the commune system was consumed locally. The small portion of output moving across commune boundaries did so through the government-owned marketing system. The same marketing system sold inputs and supplies to production units. Grain, edible oil, and cotton cloth and other goods were rationed to consumers through retail stores. Rural free markets, which traditionally had an important place in rural life, were forbidden to operate or functioned for limited time periods under stringent controls.

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[3] Figure one is based on information from TjNj and Commune Data Set.

[4] Commune Visit.

[5] Francis C. Tuan and Frederick W. Crook, "Planning and Statistical Systems in China's Agriculture." FAER-181. U.S. Department of Agriculture. Economic Research Service. April 1983.

Both material and non-material incentives were used to motivate commune members to work. A large part of a member's annual income came from production teams in the form of egalitarian grain payment for work done. A small fraction of member's income came from the labor day work payment system which attempted to relate payments to the quantity and quality of work done. A third source of income came from households, working private plots, when these plots were allowed to exist by Party decree. Party leaders taught socialist principles and encouraged farmers to work for the good of the community and the nation.

The commune system was organized in part to implement Mao's vision of the rural economy. Rural cadres, however, quickly found that to increase output, raise income and make the commune system work, it was necessary to rely on relatively small-size production teams in which the means of production were collectively owned, capitalist-like incentives were employed to induce farmers to work, and some fairly strong autonomous forces were allowed to work within teams. Maoists were fearful that the pursuit of self interest, capitalist forces, and the relatively uncontrolled initiative generated in teams might get out of control and destroy the socialist system. To prevent such an outburst they constructed powerful mechanisms to control the rural economy. Over the course of several decades from 1958 to 1978 the Party and Government issued regulations and administrative orders, and built institutions to control the initiative of teams and households. Institutions in the commune system have been placed schematically around the household and team in Figure 2 to summarize and highlight their control functions.[6]

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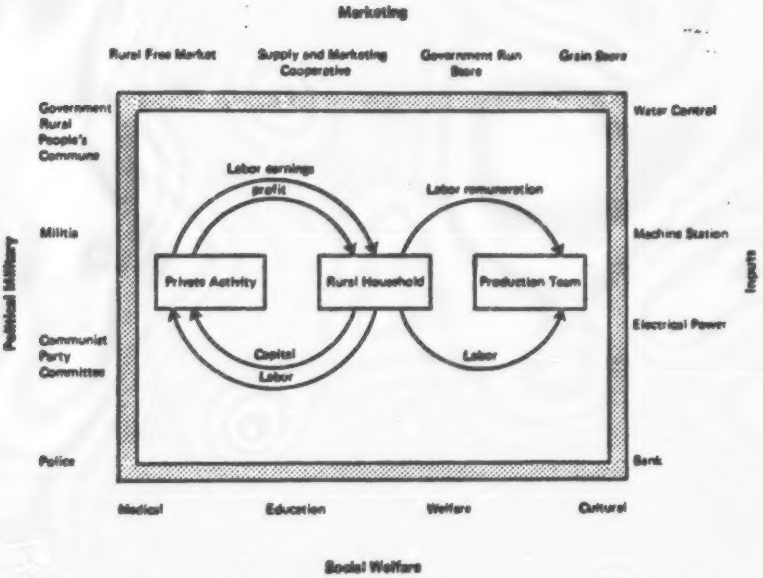
[6] Commune Data Set, and Commune Visit.

Figure 2--Basic level control mechanisms


Marketing
Rural Free Market
Supply and Marketing Cooperative
Government Run Store
Grain Store
Government Rural People's Commune
Militia
Communist Party Committee
Police
Political Military
Water Control
Machine Station
Electrical Power
Bank
Inputs
Labor earnings
profit
Labor remuneration
Private Activity
Rural Household
Production Team
Capital
Labor
Labor
Medical
Education
Welfare
Cultural
Social Welfare

In the period from 1975 to 1979, the commune system brought powerful forces to bear on teams to fulfill state production plans and follow prescribed economic and political behavior. A production team weighing possible consequences of increasing the area sown to cotton and reducing the area of wheat in order to raise income, could well have made the following analysis. If we grow more cotton, party leaders in the brigade *danwei* (basic unit) could remove our trusted team leaders from their posts. Officers in the commune *danwei* such as the state-managed credit cooperative could deny our team a loan to purchase a much-needed tractor. Managers of the commune-operated irrigation system could arrange for our fields to be watered last. Supply and marketing cooperative cadres could deny or slow down deliveries of seed and chemical fertilizers to our team and could down-grade the quality of our cotton and pay lower prices for the cotton we produced in excess of our assigned quota. If we produce less wheat, cadres in the grain station could refuse to sell us the wheat we need to meet our basic food grain rations. Cadres could choose young people from other teams to work in brigade and commune-run industries, to attend high school, and to join the youth league.[7]

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[7] Commune Visit.

Teams and households, surrounded on all sides by entities with coercive power and cadres armed with a host of restrictive red tape, decrees, and orders, bridled their self interest. Government and party leaders were successful in containing the energy inherent in teams and households which they feared so much, but at the same time they so seriously dampened inventives that output and income growth was sluggish and peasant enthusiasm for the commune system weakened.

B. ASSESSMENT OF STRENGTHS AND WEAKNESSES OF THE COMMUNE SYSTEM

China's leaders reviewing the strengths of the commune system highlighted the following points. The system with its relatively large size was effective in mobilizing and directing the rural labor force to terrace fields, level plots, and generally to upgrade farmland. Communes were also effective in managing irrigation and drainage systems, and in constructing and expanding water control projects. Also the system supported the growth of rural industry.[8] The combining of government administration and economic management in the commune system did improve collective economic organizations and strengthened rural political organs.[9]

Also it is important for us to recall that in the period from 1958-79 peasants in the commune system saw the following products of commune activity:

development of strong control apparatus;
growing importance of commune-unit and brigades as institutions advancing toward socialism;
widespread electrification;
development of an extensive rural road system;
development of an agricultural extension system;
expansion of rural financial institutions;
development of a rural health care system;
expansion of primary and secondary education in rural areas;
construction of movie theatres, libraries, and sports grounds;
development of a rural wired broadcast system; and
development of a disaster relief system.

Given these strong points, could the weaknesses in the commune system have been altered and reformed to improve performance? There were alternative paths which could have been taken, but of course the most important fact is that China's leaders in 1978-1979 decided radical changes were required.

The primary criticisms against the commune system were as follows. First, the commune system had one organizational pattern and forced economic organs to fit within administrative boundaries, which resulted in economic dislocations. Some commune economic entities such as supply and marketing cooperatives would have functioned better had they been permitted to cross commune boundaries or even county lines.[10]

Second, the unification of politics, administration and economic decisionmaking into one entity led to many abuses and errors. Political work in rural areas is reported to have declined during the commune period because rural cadres were forced to spend so much of their time making economic decisions. Furthermore, leading cadres in the commune system were also political cadres and often they did not consult experienced peasants in making decisions. Instead they issued administrative orders to implement production plans. These blind orders often led to declines in production as crops were planted, cultivated, irrigated, and harvested in the wrong way and at the wrong times.[11]

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[8] FB. July 27, 1982, p. K-1.
[9] FB. June 14, 1984, p. K-8.
[10] FB, Oct. 27, 1983, p. K-18.

Third, the commune system, characterized by a single system of public ownership, by centralized labor, and by distribution according to the labor day work payment system, did not provide strong incentives. Leading cadres made basic economic decisions in the system but bore limited risks because administrators' primary source of income came from their wages as state employees. Peasants in the teams, on the other hand, had little or nothing to say about the basic decisions affecting their economic lives, but they bore the risks. A crop failure because of a management decision to use an untested new seed variety resulted in reduced grain rations for peasants but not a commensurate decline in income for cadres who had an "iron rice bowl" from state wage funds.[12]

China's leaders reviewed the positive and negative aspects of the performance of the commune system and decided by fall 1978 that the system had to be changed radically. The system failed to motivate farmers to work. To increase output, raise living standards, and to keep peasants loyal to the regime, the vitality, creativity, and energy of 800 million peasants needed to be released.

III. MAIN ELEMENTS OF THE REFORM

In the period from Mao's death in 1976 to the end of 1978 a dramatic shift occurred in the way party leaders viewed rural development. Instead of viewing peasant tendencies toward the profit motive as the utlimate horror in a socialist society, the party decided to rely on this very motive as a means of increasing agricultural output and household income. At the same time party leaders decided to reorganize rural structures and loosen control mechanisms so that teams and households would have sufficient freedom to respond to the profit motive.

Starting from this basic reorientation, the government drastically changed the work payment system, opened rural free markets, lifted restrictions on goods entering markets, encouraged private production activity, and fostered an open debate in the press regarding the merits of the commune system and proposals to radically revamp its structure.

The pivotal decisions regarding reform of China's agricultural system were made public at the 3d Plenum of the 11th CPC Central Committee, in December 1978.[13] Major shifts in the commune system, however, really began to get underway in 1980 and these changes are continuing in 1985.

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[11] CD, June 21, 1984, p. 4; Xue Muqiao, "China Socialist Economy," Beijing, Foreign Language Press, 1981, p. 59; also see Anita Chan, Richard Madsen, and Jonathan Unger, "Chen Village: A Recent History of a Peasant Community in Mac's China," University of California Press, Berkeley, 1984, pp. 236-241.

[12] CD, June 21, 1984, p. 4; BR No. 23, June 4, 1984, pp. 22-23; BR, No. 7, Feb. 14, 1983, p. 5; and NyJjWt, No. 2, Feb. 1983, p. 3.

A. INCENTIVES

One of the major pillars supporting the reform of the commune system was the fundamental shift in the way farmers were motivated to work. Non-material incentive policies such as inter-group competitions for red flags were downplayed. Egalitarian distribution of grain rations declined and the labor day work payment system was scrapped. Farmers began to be motivated to work as they became responsible for their work and as their earnings were linked to production performance.

Rural cadres adopted an entirely new work-payment system in which households negotiated with production teams (which during the reform were converted to economic cooperatives) to farm given parcels of land, raise specified crops, and return a portion of the crops to the economic cooperative as payment for use of the land and to meet collective expenses, such as irrigation fees. This new system, called *baogan daohu* (full responsibility to households, hereafter referred to as the *baogan* system), does not use labor days as a form of payment.

The *baogan* system was initiated in 1979 and spread slowly through the provinces in 1980 and 1981. The system spread rapidly in 1982 and 1983 so that by the end of 1983 94 percent and by October 1984 98 percent of farm families used the system.[14] Economic cooperative (team) leaders were encouraged to draw up written contracts with copies of the agreement given to the household and the economic cooperative.[15]

Our knowledge of the organization, function and incentive aspects of the baogan system comes from analysis of actual and sample contracts.[16] Under baogan team or brigades (now commonly renamed economic cooperatives) assign specific plots of land to a family to cultivate for up to 15 years. For each piece of land the economic cooperative specifies the quantity of output that must be delivered to procurement stations. The contract also outlines household obligations such as contributions to capital accumulation and welfare funds; the number of days to be contributed to maintenance of water control systems; and debt repayment schedules. Output raised in excess of state and collective obligations is the reward to the household. Families can consume the surplus or sell it in rural markets as they wish. The dynamics in the baogan system consist of families being permitted to raise income through hard work, good management, wise use of technology, and reduction of production costs.

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[13] Communist Party of China, Central Committee, "Decisions on Some Problems in Accelerating Agricultural Development, Third Plenary Session of the 11th CPC Central Committee, December 22, 1978," FB, Aug. 31, 1979, pp. L22-37.

[14] Joint Seminar of U.S. and PRC Economists, Remarks by Economists from the Institute of Economics, Chinese Academy of Social Science, Library of Congress, Washington, D.C., Sep. 20, 1984; also see F.W. Crook, "A Report on China's Production Responsibility System," unpublished paper, Asia Branch, IED, ERS, U.S. Department of Agriculture, Nov. 1, 1983, Appendix table I and II, pp. 63-76; and HQ, No. 21, Oct. 21, 1984, pp. 44.

[15] JPRS, AG, No. 80,404, Mar. 24, 1982, p. 39; and RmRb, Aug. 15, 1983, p. 1.

[16] "Tuijian ifen baogan daohu de hetonghsu" ("Recommended Form of Contract Document to Implement the Full Responsibility to Household System"). *Shanxi Ribao*, Sep. 3, 1981, p. 2; and Carolyn L. Whitton, "Trip Report; Interviews with Agricultural Officials in 8 Chinese Provinces and Hong Kong, July 9-Aug. 10, 1984," Asia Branch, IED, ERS, U.S. Department of Agriculture, Washington, D.C., Sep. 21, 1984, pp. 30-32. Several scholars have written articles on the household contract system. David Zweig, "Context and Content in Policy Implementation: Household Contracts in China, 1977-83," in David Lampton, Editor, "Policy Implementation in Post-Mao China", forthcoming. Greg O'Leary and Andrew Watson, "The Production Responsibility System and the Future of Collective Farms," The Australian Journal of Chinese Affairs, No. 8, pp. 1-34. Richard J. Latham, "The Political, Social, and Economic Implications of the Household Production Responsibility System," workshop on Recent Reforms in China, Harvard University, April 1983.

B. OWNERSHIP OF THE MEANS OF PRODUCTION

The fact that the pattern of ownership of land and fixed assets has not changed should not obscure the substantial changes which have occurred in the practical way in which farmers relate to the land. Before *baogan,* farmers worked collectively owned land as directed by team leaders. After *baogan,* households were assigned a specific plot of land to work. At first contracts were made for a season or for a year and then the time period was extended to 15 years to encourage households to increase investment in the land, develop soil fertility and increase intensity of farming.[17] "Document No. 1" ("The CPC Central Committee's Circular on Rural Work in 1984") further highlighted household's special tenure rights and obligations to the land by stating that with the approval of the cooperative unit, households can transfer contracted land from one household to another.

The rule allowing transfers of contracts will allow for further specializaton in the rural areas. This specialization will allow shifts of the labor force from planting crops to work in village industries, in commerce, and in construction. These trends have been foreseen by China's leaders and they are encouraging these shifts.[18]

C. PLANNING AND MARKETING

From 1980 to 1984 central planning continued to play a dominant role in resource allocation and economic decisions made by teams and households. But progress was made in introducing indirect planning measures such as the use of procurement prices and interest rates to affect economic decisions. A decree was issued in December 1984 which said that the planned purchase and planned supply system would cease to function in 1985. This system had been the kingpin in the state control over the marketing of major agricultural products. Purchase contracts signed between economic cooperatives or (households) and state owned grain purchase stations plus use of rural markets are scheduled to be used to lead production units to supply the proper mix of goods required.

Mao's self-sufficiency dictum "grow grain everywhere" was relaxed in this period. Teams and households began to produce crops and animals which were best suited for their natural conditions. Excellent cotton growing land in Shandong province which had grown grain during the Cultural Revolution reverted back to growing cotton in this period. By the end of 1984 the policy of limited specialization had been implemented and grain rationing and marketing systems had been put in place so that further specialization could take place if conditions permitted.

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[17] RmRb, June 12, 1984, p. 1.

[18] CR, No. 6, June 1984, pp. 14-17.

Self-sufficiency forces continued to play an important role in economic cooperatives (teams) and household resource allocation in the period 1980–84. Only 20 to 30 percent of total grain output was marketed off-farm either through sales to government grain stations or sales in the free market. The vast majority of economic cooperatives and households relied on their own efforts to ensure grain supplies.[19] The proportion of other agricultural and sideline products marketed increased from 49 percent in 1978 to 55 percent in 1983 and the proportion of cash purchases of total household consumption expenditures changed from 39.7 percent in 1978 to 58.8 percent in 1983.[20]

D. MOBILITY OF FACTORS OF PRODUCTION

Reform policies reduced significant barriers limiting mobility of factors of production. Households were permitted to invest funds in enterprises within their township and to even invest in enterprises outside their administrative unit. Households not wishing to specialize in agricultural production and take up *baogan* contracts to farm land were permitted to move to village and town centers to engage in non-agricultural production or enter service trades such as tailoring and transportation. Wide scale migration of farmers from rural to major urban centers, however, was discouraged.

The new policies encouraged collective and private individuals to organize new firms to undertake productive endeavors. As will be seen in the next two sections, millions of new entities have entered the economic system. These same policies, however, underscore the possibilities for business failures and exit of firms from the system.

IV. Dismantling of the Commune System and the Establishment of the Township-Collective-Household System

Top government and party leaders decided to dismantle the commune system and restructure the separate parts into a new rural system—the township-collective-household system. Whereas the commune system integrated politics, administration, and economics into one unit, the new system was designed to have separate institutions handle specific functions. Townships, the basic level unit of government in pre-commune days, were reconstructed to handle government and administrative functions. Party committees were to concentrate on party affairs. Economic collectives were organized to manage economic affairs. Households were encouraged to sign contracts with economic collectives. The new system consisted of 5 parts: local government, party, state entities, collective economic entities, and households. A schematic view of the realignment of old institutions and organization of new entities is presented in Figure 3 below. A quick comparison between Figure 2 and Figure 3 underscores two major points: first, the new structure is less monolithic and should provide households and economic cooperatives greater freedom to make economic decisions than before;

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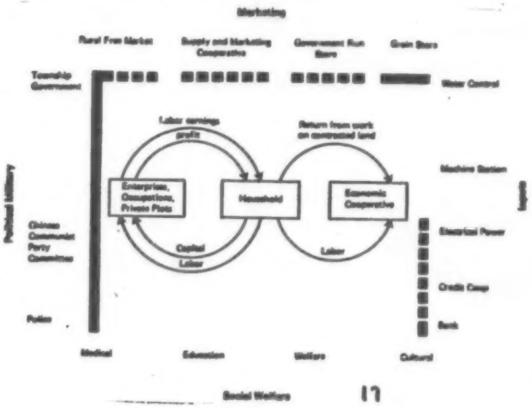
[19] RmRb, Aug. 13, 1984, p.1.

[20] RmRb, Aug. 13, 1984, p.1.

and second, important mechanisms to control economic behavior have been retained in the new structure.

Figure 3--The Structure of the Township-Collective-Household System


Marketing
Rural Free Market
Supply and Marketing Cooperative
Government Run Store
Grain Store
Township Government
Water Control
Labor earnings
profit
Return from work on contracted land
Machine Station
Political Military
Enterprises, Occupations, Private Plots
Household
Economic Cooperative
Chinese Communist Party Committee
Electrical Power
Capital
Labor
Labor
Credit Coop
Police
Bank
Medical
Education
Welfare
Cultural
Social Welfare
17

A. LOCAL GOVERNMENT

The new form of local governments being constructed in rural areas consists of 3 parts: people's congresses; township governments; and village committees. The name affixed to this new entity is *xiang* or township.

People's congresses

Citizens in rural areas directly elect deputies to 3-year terms of office in township people's congresses. Township people's congresses elect the leader of the township government and deputy heads. The congress hears and examines reports from township governments and revises or rescinds inappropriate decisions made by the government. The congress also formulates economic, cultural, and public service construction plans. These congresses also have the responsibility to enforce orders from higher levels, uphold the constitution, and protect state and collectively owned property.[21]

Township government

Heads of township governments are elected by township people's congresses for 3-year terms. Each township government has a staff of from 7 to 11 members. If 30 percent or more of a township population are minority peoples, then a minority person must head the township government.[22] The staff includes a deputy head, one director of the armed forces department, a secretary and assistants in charge of various departments.[23]

The following departments likely would be found in township governments in 1985: civil affairs; military; education; public health; family planning; culture; public security; and statistics.[24] A comparison of departments and functions in communes with those in townships underscores one of the main themes of the reform—township departments only perform traditional government functions.

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[21] "The Organic Law for the Local People's Congresses and Local People's Governments of the PRC," *FB*, No. 244, Dec. 20, 1983, pp. K-43-54.

[22] FB, No. 244, Dec. 20, 1982, p. K-52; and *CD*, June 29, 1984, p. 1.

[23] FB, No. 167, Aug. 26, 1983, p. S-1.

Village committees

Village committees are subordinate to townships, which are the lowest level units of government. Village committees are "mass organizations of self government" and while they do perform many governmental functions they are not formally organized government administrative units.[25] Village committees function in roughly the same area as former production brigades. A person living in rural China in 1985 likely would find the village committee in his village engaged in some of the following activities: overseeing the unified management of water conservancy projects; formulating rules for villagers; managing welfare services; mediating civil disputes; and maintaining public order and security.[26]

B. LOCAL PARTY ORGANIZATIONS

More than half of China's 40 million party members live in rural areas. Party organizations in rural areas exist at township, village, and sub-village levels. Party committees at township and village levels do most of the important work of the party.[27]

Township party committees

The number of committee members elected to township party committees varies from one location to another. In 1985 an observer would most likley have seen the following staff positions in a committee: CPC committee secretary; deputy secretary; organization committee member; propaganda; discipline; inspection and economic affairs; youth league; women's federation; and peasant association committee member.[28] Members of the committee are supposed to be elected by secret ballot for 3-year terms.[29]

Party branch

Party branches, which were organized as part of the commune political system decades ago, remain in place.[30] The party branch is the basic organizational unit of the party. Within its sphere of influence the village (PB) party branch carries out functions similar to those described for the township party committee.

Party branch committees generally have from 3 to 7 members and are led by a director, a deputy director and a general secretary.[31] Other members of the committee serve as chairpersons for 5 committees: family planning; civil administration; mediation of civil disputes; public security; and culture, education, and health.[32]

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[24] Reports from Commune Data Set; FB, Apr. 11, 1983, p. K-1; FB, Aug. 26, 1983, p. S-1; FB, Oct. 5, 1983, p. K-13; FB, Apr. 4, 1984, p. K-1; FB, Mar. 10, 1983, p. K-18; and FB, Aug. 26, 1983, p. S-1.

[25] FB, May 13, 1983, p. Q-3; and FB, Feb. 15, 1984, p. K-15.

[26] FB, Oct. 5, 1983, pp. K13-19; FB, July 18, 1984, pp. O-1; and FB, Feb. 15, 1984, p. K-15.

[27] SWB, No. 7337, May 19, 1983, p. C-7; and HQ, No. 20, Oct. 16, 1983, pp. 3-11.

[28] JPRS, POL, No. 83, 787, June 29, 1983, p. 115; and BR, No. 7, Feb. 14, 1983, p. 5.

[29] FB, Oct. 5, 1983, pp. K13-18.

[30] Dai Maozhai and Tang Jingliang, Editors, Nongcun dangzhibu tsenyang fahui baolei zouyong ("How Rural Party Branches Can Become a Strong Fortress"). Shanghai, People's Press, Second printing, April 1960, 42 pages.

Party cells

Party cells function under the leadership of party branches and are not basic units of organization. Where there were sufficient number of members, cells were organized on a production team basis. The purpose of the cell is to actively implement party policy and to organize sessions to study major party documents and ideological works.[33]

C. STATE ENTITIES

Whereas rural leaders used state owned or managed entities to control team and household economic behavior in the period from 1958–79, by 1985 rural reforms weakened many of these control mechanisms. Control mechanisms lost much of their power to affect economic behavior when the unitary structure of the commune system was split so that townships had governmental power, party committees had political power, and economic entities became independent economic units. The ability of control mechanisms to affect behavior also was reduced when the government lossened its control over supply and marketing and credit cooperatives and made them stand as independent economic entities controlled by local citizens. Moreover the government consciously revamped administrative rules which formerly gave monopoly power to some commune entities such as transportation departments, machine tractor stations, and agricultural extension departments.[34]

D. COLLECTIVE ECONOMIC ENTITIES

Substantial changes have occurred in rural economic organizations in the 6-year period from 1980–1985. Patterns of ownership, decisionmaking, organization, and control have changed. The reform of rural economic systems had not run its course at the end of 1985 and further changes can be expected in years to come. China's leaders have encouraged provinces and regions to experiment with different kinds of economic organizations.[35] Because the system is in the midst of change, generalizations about rural economic organizations are difficult to make. Various economic parts such as commune-units, brigades, teams, supply and marketing, and credit cooperatives have been spearated from the old integrated commune system to form new collective economic entities or economic cooperatives. The new economic orgaizations can be placed for the purposes of discussion into 3 economic entities: economic cooperatives; village and township enterprises; and new enterprises.

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[31] Research Office and Organizational Bureau of the Organization Department, Editor, Communist Party of China, Central Committee, Dangdi Zuzhi Gongzuo Wenda ("Questions and Answers on the Party's Organizational Work"), People's Publishing House, Jan. 1983, 299 pages; translated in JPRS. CPS-84-062, Sep. 19, 1984, pp. 135–144. Also see FB. Oct. 5, 1983, pp. K 13-18.

[32] JPRS, POL. No. 83, 787, June 29, 1983, p. 115.

[33] See "Dangdi Zuzhi Gongzuo Wenda," JPRS, CPS-84-062, Sept. 1984, p. 144.

[34] FB, Apr. 15, 1983, p. K-10; and FB, Mar. 24, 1983, p. 0-4.

[35] FB, Mar. 19, 1984, p. K-14; CD, Jan. 19, 1984, p. 4; and RmRb, June 12, 1984, p. 1-2.

Economic cooperatives

Commune-units, production brigades, and teams from the old commune system have been and are being converted to economic cooperatives. These cooperatives have some common features with units of the old commune system. For example both have collective ownership of the means of production. Both were supposed to be democratic entities and use cooperatives management practices. The major difference between the two, however, is that commune units, brigades and teams in the old commune system used administrative means to guide economic activity. The newly organized economic cooperatives limit their attention to capital accumulation and organizing entities such as plant protection firms to service household requirements. Economic cooperatives also initiate, adjust, and solve difficulties involved with fixing contracts with households.[36]

Economic cooperatives vary widely in China's provinces with respect to origin, size, and function.[37] The size of an economic cooperative is dependent in part upon the nature of the unit of account in the old commune system. If commune units owned the land and was the basic unit of account in the old system, then in the new system cadres were likely to establish a cooperative which had township-wide jurisdiction. Branches of the cooperative could be organized at brigade levels.[38] Likewise if brigades or teams owned the land in the old system, then brigade and team cooperatives were established on the same scale.

Village and township enterprises

The reform of rural non-agricultural enterprises has been as substantial as the reform of brigades and teams. At the end of 1985 the reform was still in progress and provinces experimented with many different organization types. The entrance of so many new kinds of entities in rural areas prompted the State Council to recommend that the general name used to identify rural enterprises be changed from "commune and brigade enterprises" to "village and town enterprises".[39] The reason for the change in name stemmed from the fact that many new economic entities were being organized which were not old commune and brigade enterprises. The new name "village and town enterprises" includes both the old RPC–PB enterprises and the newly organized cooperatives, corporations, companies, and joint entities.

In the new system the independent accounting units are responsible for their own profit or loss. The enterprises operate under the general guidance of either township administrative departments or a township "economic management committees";[40] agricultural-industrial-commercial entities;[41] or "economic associations."[42] These economic associations under the general guidance of party and government entities are supposed to provide "positive guidance" to the general orientation of their development and "control" them with respect to state policies.[43] The "positive guidance" and "control" given by twonship economic, political, and governmental entities to economic enterprises consists of making unified arrangements for production plans; quality of output; safety; and protection of the environment.[44]

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[36] BR, Nov. 5, 1984, pp. 23-25.

[37] FB, Nov. 20, 1984, p. K-13.

[38] JPRS, POL. No. 83,946, July 21, 1983, pp. 121-124.

[39] State Council, "Report on Creating a New Situation for Commune and Brigade Enterprises," FB, Mar. 23, 1984, p. K-16; and FB, Mar. 19, 1984, p. K-14.

[40] FB, Apr. 1, 1983, p. O-1; and FB, Aug. 26, 1983, p. S-1

New enterprises

The reform of rural enterprises created circumstances in which a wide variety of new enterprises were established in the period from 1983 through 1985. The organization of three new entities are described below. First, many communes have or are in the process of converting commune administrative entities to service companies. For example, commune transportation departments are being converted into transportation companies.[45] Second, supply and marketing cooperatives and households combined to initiate the formation of new economic entities. Often households and other economic entities purchased shares to establish new firms and receive dividends in return.[46] Third, agricultural-industrial-commercial integrated enterprises (Nonggongshang lianhe qiye) are those integrated entities which take agricultural production as the initial task and then process and market the final product. The formation of these entities is the natural consequence of the expansion of socialist division of labor, agricultural specialization, and concentration of producers in a given region. In 1978 they were initiated in state farms and rural people's communes. The most important element of these integrated entities is that they produce, process, and market agricultural products such as milk and milk products; silk and silk products; and fruit and canned fruit products.[47]

E. HOUSEHOLDS

The commune system was designed in part to contain the energy of households, but the township-collective-household system encourages households to play a major role. Two new economic structures, namely the *baogan* system and specialized households have been established to harness the vitality of rural families. The *baogan* system has been discussed already so attention can now be turned to specialized households.

A specialized, household (*zhuanyehu*) is an agricultural household which has comparatively more and better skilled workers whose output is higher than the average. Also a greater amount of output is marketed than normal and income from sales makes up a large portion of household income.[48] Specialized households were sanctioned after the 1978 3d Plenum emphasized specialization and the *baogan* system began to be implemented. Their numbers grew to 16 million in 1983 and by October 1984 advanced to 24 million, more than 13 percent of the total number of rural households.[49]

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[41] JPRS, POL, No. 83,946, July 21, 1983, pp. 121-124.

[42] CD, Jan. 19, 1984, p. 4.

[43] FB, Mar. 19, 1984, p. K-14.

[44] FB Mar. 23, 1984, pp. K7-16.

[45] FB, Mar. 4, 1983, pp. O2-5; FB, Apr. 15, 1983, p. K-10; FB, Feb. 15, 1983, p. R-2.

[46] FB, Mar. 23, 1984, p. K-7; SWB, FE, W1303, Sep. 5, 1984, p. A-3; and Yong Jiazhen, Xiao Zhongming and Xu Yuanming, "Views and Several Questions Concerning the New Economic Combines in the Countryside—On an Investigation of Counties in Nanjing's Suburbs and Related Thoughts," GmRb. Oct. 29, 1984; translated in FB, Nov. 9, 1984, pp. K5-9

[47] Ag Econ Dictionary, p. 8.

The term specialized household seems broadly defined to include a wide range of households with varying degrees of specialization, output, percent of goods marketed and income generated. Initially, formerly unemployed or underemployed persons in a household specialize in a production process which made the family only slightly different from an average household in a team. For example one household might add several extra hogs to those already being fed. As specialization continued, output, income and marketing rates rise and the household becomes clearly different from the average household. These households are sometimes referred to as "key households" (*zhongdianhu*) which are intermediary between average and fully specialized households. Fully specialized households in the narrow definition refers to those which: a) devote most of their labor and capital to produce the specialized product or service; b) market more than 70 percent of their output; and c) derive more than 50 percent of their income from the specialized activity.[50]

V. ASSESSMENT AND PROSPECTS

A. ASSESSMENT OF RURAL REFORMS

An overall assessment of the effect of the rural reforms on China's rural economy cannot be made until the reforms are completed; statistics are collected and published; and researchers have time to analyze the record. But preliminary questions can be raised, and comments and judgments can be made.

One part of the record is clear—agricultural output, yields, value of output, and per capita rural incomes rose substantially in the period from 1980–1985. The record is not so clear with regard to what effect investment, changes in input availability, weather, changes in marketing systems, and price changes have had upon this dramatic rise in the performance of China's rural economy.

Our initial impression is that the production responsibility and the *baogan* system greatly boosted work incentives. It encouraged farmers to carefully use inputs and raise yields and output. It gave them a new stake in the rural economy. It allowed them considerable freedom to make on-the-farm decisions and allowed them to allocate their own labor force and arrange their own work schedules. The baogan system was implemented rather late in the period but did have a positive effect on raising output in the 1983–85 period. It likely will continue to boost output over the next 3 or 4 years.

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[48] Ag Econ Dictionary, p. 46.

[49] SWB, FE, W1274, Feb. 15, 1984, p. A-2; and HQ, No. 20, Oct. 21, 1984, p. 45.

[50] Wei Kenan, "Lun woguo nongcun zhuanyehu de chansheng, fazhan ji qi zhongda zuoyong" (On the Emergence, Development and Important Role of Specialized Households in China's Rural Areas), NyJjWt, No. 9, 1983, pp. VIII 15 to 20; and FB, Feb. 22, 1983, p. R-2.

B. PROSPECTS: WHITHER THE RURAL REFORMS?

Several conditions will affect the direction of rural reforms in the long term (1986–2000). First, motivation and management of the rural labor force will continue to be a major element in China's rural development. The rural population is large, growing, and not likely to be shifted to urban areas. Agricultural output and rural industries will continue to depend upon large inputs of labor. These conditions dictate that households and small cooperatives will continue to be an important feature of rural organizations. Second, China's leaders and the general population are committed to rapid economic development. This commitment to economic growth must of necessity force changes in policies and organizations. The period will not be static, and we can look forward to a decade and a half of change.

In the short timeframe from 1986 to 1990 rural reforms could take any one of 5 possible directions:

A return to pre-1975 policies and institutions;

Partial reconstruction of the commune system, strengthening the role of central planning and control mechanisms, and less mobility and flexibility for rural households;

Completion of current reforms;

Expanded use of markets and prices, use of indirect controls, greater factor mobility; or

Abandonment of socialist institutions and only limited government control of the economy, with assets privately owned, reliance on markets and prices to make economic decision, and factor mobility.

A number of forces and factors will affect the direction of the reforms in the next 5 years. First, most peasants have lost considerable faith in the party's ability to manage the rural economy. The constant change in the party's line made farmers skeptical about the ability of party officials to lead as each change was founded and justified on infallible Marxist analysis. Perennial cadre promises that living conditions would improve clashed with the poor economic performance which left households increasingly bitter and without hope. Peasant cynicism and hostility toward the party grew to the extent that it was openly discussed in the press.[51] Articles pressing for reforms in the rural areas stated that the reforms were necessary to: raise output; increase income for rural people; and to enlist the support of rural areas. For example a commentator in a China Peasant News article said the following:

> . . . now is the crucial time. Under no circumstances should we thwart the peasants and change those policies which should not be changed [author's note—i.e., do not change the policy of promoting use of *baogan*; because, if we do, peasants would no longer have faith in our party, we would lose the public support that we have just won, and peasants would lose confidence in our party.[52]

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[51] FB, Oct. 24, 1984, p. K-6.

[52] "Reform the Superstructure, Develop the Favorable Rural Situation," ZgNmB, Nov. 22, 1983; translated in FB, Nov. 23, 1983, p. K-10.

Rural incomes have risen sharply in the past few years and households have considerable freedom to make economic decisions, to determine work schedules, and market products. Rural households, like households everywhere bitterly resist declines in living standards. If rural policies and institutions of the mid 1970's were resurrected, most rural households would be opposed and it would take a monumental amount of force and energy on the part of the government and party over a considerable period of time to reintroduce the old system. Opposition could take any number of forms, from armed opposition to passive resistance. Because of the party's record of past mismanagement of the rural economy and because of the apparent lack of support for the old system among most rural residents, it is not likely that old forms will be reinstituted.[53]

Second, in the short term China likely will not abandon socialism and institute capitalism. China's current leaders continue to support socialism and oppose capitalism. While they have shown considerable flexibility in searching for institutions which fit China's peculiar requirements, they also have made clear their intention to stay within the socialist boundary. Indeed the decision to experiment was not unanimous—some within the party opposed and continue to impede the progress of the reforms. For example rural households in Hunan province concerned about the tardy response of cadres in implementing the baogan system, wrote these couplets. "Heaven is smiling, Earth is smiling, And the people are smiling heartily, Those above are anxious, Those below are anxious, But those in between are not anxious, It is baffling." [54] Also some of the commune cadres who lost income, privileges, status and power have opposed the reforms. Moreover, reduced welfare benefits, lower income, and the added burden of risk taking will make some households unenthusiastic about the current reforms and will provide opposition for further changes.

In the 1986–87 period the current policy and institutional reforms can be expected to continue. Gains made in implementing the *baogan* system, organizing specialized households, reorganizing the commune system, and establishing new rural economic entities will continue.

The direction rural reforms take in the last few years of the 1980 decade will depend on the success China's leaders have in implementing rural reform programs and most importantly in overseeing changes in the urban-industrial sector of the economy. If rural reforms proceed on course, if per capita incomes continue to rise, if industrial management, price, and wage reforms are successful, and if leaders gain confidence in the new institutions, then one could envision expanded use of markets and prices and the use of indirect controls for the rural economy.

On the other hand if urban reforms encounter serious problems, China's leaders may strengthen the role of central planning and control mechanisms. It may prove difficult to change the system by which managers are recruited, trained, promoted and retired. The reform of prices may encounter difficulties and irrational prices may persist. China's leaders are sensitive to the political damage caused by inflation and a general rise in the level of prices may induce them to use administrative mechanisms to curb price increases. Urban workers may resist the widening of wage differentials and some workers may prefer the old "iron rice bowl" system of egalitarian income distribution.

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[53] An Zhiguo, "History Will Not Repeat Itself," BR Nov. 19, 1984, p. 4.
[54] FB. Apr. 20, 1981, p. P-5.

Policy and structural changes have had important consequences in China's overall economic performance and foreign trade in the past. Because this trend is likely to continue, events in rural China will merit close scrutiny for the rest of the decade at least.

APPENDIX

A. ABBREVIATIONS USED

The following abbreviations are used in this report:

Ag Econ Dictionary—Chendao, Chief Editor, Jingji Dacedian: Nongye Jingji Zhuan (Agricultural Economics Section of Economic Dictionary). Nongye Chubanshe, April 1984, 608 pages.

BR—Beijing Review (Peking Review), weekly distributed by Guoji Shudian, Beijing, China.

CD—China Daily, published by China Daily Distribution Corp., 15 Mercer Street, New York, New York, 10013.

CR—China Reconstructs. Beijing.

Commune Data Set—Frederick W. Crook, "Reports on Rural People's Communes," and unpublished data set, Great Falls, Va.

Commune Report—Federick W. Crook, "The Commune System in the People's Republic of China, 1963-74," China: A reassessment of the Economy, Joint Economic Committee, 94th Congress, 1st Session, July 10, 1975.

Commune Visit—Frederick W. Crook, "Notes on Visits to Communes," Part II, "Report on an Agricultural Observation Trip to China, July 1982," Asia Branch, IED, ERS, U.S. Department of Agriculture, Sep. 25, 1982.

FB or FBIS—Foreign Broadcast Information Service, Daily Report: China, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia.

GmRb—Guangming Ribao (Brillance Daily), Beijing.

HQ—Hongqi (Red Flag), Beijing, 1975-84.

JPRS—U.S. Joint Publications Research Service, China Report, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia. This report is published in three separate sections. EC, refers to the China Report—Economic Affairs; POL, refers to the China Report—Political, sociological, and military affairs; AG, refers to the China Report—agriculture.

NyJjWt—Nongye Jingji Wenti (Problems of Agricultural Economics), monthly journal published by Zhongguo shehui kexue chubanshe, Beijing.

RmRb—Renmin Ribao (People's Daily), Beijing.

SWB—Summary of World Broadcasts, the Far East Weekly Economic Report, British Broadcasting Corporation, Reading, England.

TjNj—State Statistical Bureau, Editor, Various issues published in 1981 and 1983. Zhongguo Tongji Nianjian (China Statistical Yearbook) Beijing, Zhongguo Tongji Chubanshe.

ZgNmb—Zhongguo Nongmin Bao (China Peasant News), Beijing, 1983-1984.

B. TITLES OF BOOKS WHICH CONTAIN INFORMATION ON THE COMMUNE SYSTEM

1. Barker, Randolph, Radha Sinha, and Beth Rose, Ed. "The Chinese Agricultural Economy." Boulder, Colorado: Westview Press, 1982.
2. Bennet, Gordon, Ken Kieke and Ken Yoffy. "Huadong: The Story of a Chinese People's Commune." Boulder, Colorado: Westview Press, 1978.
3. Bernstein, Thomas P. "Up to the Mountains and Down to the Villages." New Haven, Connecticut: Yale University, 1977.
4. Burki, Shahid Javed. A Study of Chinese Communes. Asian Research Center, Cambridge, Mass.: Harvard University, 1970.
5. Chan, Anita, Richard Madsen, and Jonathan Unger. "Chen Village: Recent History of a Peasant Community in Mao's China." Berkeley, California: University of California Press, 1984.
6. Economic Management Office of the Rural Work Bulletin, Ed. "Nongye Renmin Gongshe Shengchan Zerenzhi Leibi" (Collection of Articles on Rural People's Commune Production Responsibility System). Beijing: Nongye Chubanshe. Nov. 1981.
7. Lampton, David, Ed. "Policy Implementation in the Post-Mao China." forthcoming, 1985.
8. Lardy, Nicholas R. "Agriculture in China's Modern Economic Development." Cambridge: Cambridge University Press, 1983.
9. Ma, Wei-yi. "A Bibliography of Chinese-language Materials on the People's Communes." Center for Chinese Studies, Ann Arbor, Michigan: University of Michigan, 1982.
10. State Statistical Bureau, Editor, Various issues published in 1981 and 1983. "Zhongguo Tongji Nianjian" (China Statistical Yearbook) Beijing, Zhongguo Tongji Chubanshe.
11. Stavis, Benedict. "People's Communes and Rural Development in China." Ithaca, N.Y.: Cornell University, 1975.
12. Stiefel, Matthias, and Willem F. Wertheim. "Production, Equality, and Participation in Rural China." United Nations Research Institute for Social Development, Popular Partcipation Programme, Geneva, 1982.
13. Tuan, Francis C., Frederick W. Crook. "Planning and Statistical Systems in China's Agriculture." FAER-181. U.S. Department of Agriculture, Economic Research Service, Apr. 1983.

C. TITLES OF ARTICLES

1. Ahn, Byung-joon. "The Political Economy of the People's Communes in China: Changes and Continuities," Journal of Asian Studies, Vol. 34, No. 3, May 1975, pp. 631-658.
2. Aubert, Claude. "The New Economic Policy in the Chinese Countryside," Septieme Conference International Sur L'Agriculture en Union Sovietique et Dans Les Pays De L'Est, Grignon, France, 9-13 Juillet 1984.

3. Blecher, Marc. "Comment on Income Distribution in Small Rural Chinese Communities," The China Quarterly, No. 68, Dec. 1977, pp. 797-816.

4. Croll, Elizabeth J. "Chiang Village: A Household Survey," The China Quarterly, No. 72, Dec. 1977, pp. 786-814.

5. Crook, Frederick W. "The Commune System on the Eve of Change, 1975-1979," unpublished paper, China Section, Asia Branch, IED, ERS, U.S. Department of Agriculture, Feb. 1985.

6. Domes, Jurgen. "New Policies in the Communes: Notes on Rural Societal Structures in China, 1976-1981," Journal of Asian Studies, Vol. XLI, No. 2, Feb. 1982, pp. 253-267.

7. Hama, Katsuhiko. "China's Agricultural Responsibility System," Japan External Trade Organization, China Newsletter, No. 44, (Sep.-Oct., 1982), pp. 2-11.

8. Kueh, Y.Y. "Economic Reform in China at the Xian Level," The China Quarterly, Dec. 1983, pp. 665-688.

9. Vermeer, E.B. "Rural Economic Change and the Role of the State in China," Asian Survey, Vol. XXII, No. 9, Sep. 1982, pp. 823-842.

10. Watson, Andrew. "Agriculture Looks for 'Shoes that Fit': The Production Responsibility System and Its Implications," World Development, Vol. 11, No. 8, Aug. 1983, pp. 705-730.

D. THE COMMUNE DATA SET

"Reports on Rural People's Communes," is an unpublished data set constructed by the author as a research tool to understand developments in rural China. The project to collect reports on communes commenced in 1973 and was used to prepare the article on communes in the 1975 JEC volume, "China: A Reassessment of the Economy." See pages 407-408 in that volume for a general description of how the data set was constructed and the kinds of information contained in the set. The great upsurge in the number of yearbooks, statistical abstracts, books, journals and newspapers published in China since the Cultural Revolution and the growing number of visitors provided a wealth of information on rural China. The collection of reports has continued and at the end of 1984 contained more than 8,700 reports.

PEASANT NON-AGRICULTURAL PRODUCTION IN THE PEOPLE'S REPUBLIC OF CHINA

By Lee Travers*

CONTENTS

	Page
Summary	376
I. Introduction	376
II. Collective Non-agricultural Production	378
III. Private Non-farm Enterprise	382
IV. Employment and Income	385
V. Conclusion	386

SUMMARY

By 1957, institutional change in the countryside substantially altered the nature of non-agricultural employment available to Chinese villagers. Cooperatives absorbed private productive activity. A brief spurt of rural industrial production during the Great Leap Forward was followed by a decade of little activity. Collective non-farm production began rapid growth again in 1970, but private activity remained suppressed. In 1978 the strictures on private production and marketing began to be lifted, and by 1983 employment in private undertakings exceeded that in collective production.

Rural non-farm industries produce over 11 percent of national industrial output, and dominate the supply of some commodities—especially construction materials. Industrial, construction, transport, and service enterprises absorb over 20 percent of the rural labor force and produce at least that high a percentage of total peasant income.

I. INTRODUCTION

Rural residents have always engaged in productive economic activity beyond the crop and animal husbandry normally associated with rural life. Construction, marketing, and the manufacture of consumer and producer goods are activities typically found in a peasant society. While some households may specialize in non-agricultural work, most allocate their labor to both agricultural and non-agricultural projects based on seasonal demand.

In the early years of the People's Republic of China about 20 percent of the value of total output in rural areas resulted from non-agricultural activities:

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*The Ford Foundation.

TABLE 1.—AGRICULTURAL AND SIDELINE TOTAL OUTPUT VALUE

[Billion 1952 yuan]

	Year—						
	1949	1952	1953	1954	1955	1956	1957
Total output value	32.60	48.39	49.91	51.57	55.54	58.79	60.35
Of which—							
Peasant sideline production	6.40	9.92	10.77	10.98	11.84	12.14	12.27

Source: Nongyebu Jihuazhu (Ministry of Agriculture, Planning Bureau) ed., "Nongye Tongji Ziliao Shouze" (Handbook of Agricultural Statistics), Nongye Chubanshe (Agricultural Publishing House), Beijing, 1953, pp. 22-23.

While rural non-agricultural production for the market was not included in the redistributive reforms of the early 1950s, Communist Party leaders thought that producer cooperatives had the same strengths for both agricultural and non-agricultural production: concentration of capital, specialization of labor, and increased market power.[1] Organizing the scattered handicraft producers proved difficult. Not until 1956 and the big push to organize agricultural cooperatives did the percentage of handicraft workers in cooperatives jump, going from 26.9 percent to 91.7 percent by year end.[2] Through the 1950s, rural private marketing activities were increasingly displaced by supply and marketing cooperatives. The latter eventually monopolized trade to and from the state sector, leaving little scope for private trading.

By 1957 the government used identity documents and the urban grain rationing system to control rural-urban labor flows. Grain sales on rural free markets were prohibited, forcing peasants to rely on their collectives for food.[3] The collective determined who was permitted to seek non-farm work. Urban enterprises needing rural labor were encouraged to obtain it through agricultural collectives. Collective rather than individual initiative began to determine economic opportunities.

Prior to 1958 and the Great Leap Forward (GLF), handicraft production for family consumption (over half of sideline production), was not much affected by government policy.[4] The GLF, however, led to a radical transformation of the entire structure of production in rural China. Local government merged with producer cooperatives to form communes. Collective demands on household labor left little time for private production, while massive labor and capital investments resulted in rapid, if short-lived, growth in collective non-agricultural enterprise. Existing handicraft cooperatives were integrated into the newly formed communes, becoming known, appropriately, as commune enterprises. Newly created non-agricultural enterprises quickly outnumbered traditional undertakings. The total output value of commune enterprise surged to 10 billion yuan by 1959, over 25 percent of commune total income that year.[5] This increase in the relative economic importance of non-

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[1] See Mao Tsetung, "Speed Up the Socialist Transformation of Handicrafts," in "Selected Works of Mao Tsetung," Vol. 5, Foreign Languages Press, Beijing, 1977, pp. 281-283.

[2] Audrey Donnithorne, "China's Economic System," F.A. Praeger, N.Y., 1967, p. 221.

[3] Ibid., pp. 183-184.

[4] Nongye Tongji Ziliao Shouce, op. cit., pp. 22-23.

[5] Interview at Commune and Brigade Enterprise Bureau, Ministry of Agriculture, Beijing, 19 August 1981; Guojia Tongjizhu (State Statistical Bureau), Zhongguo Tongji Nianjian (China Sta-

Continued

crop activities quickly reversed when the collapse of the agricultural economy beginning in 1959 led to a reallocation of resources to agriculture.Most commune enterprises were abandoned or reverted to their original owners, leaving total output value of such enterprise at only 0.4 billion yuan by 1963, when the government discouraged further development.[6]

After a period of relative economic freedom following the GLF, by 1965 the consolidation of the commune system, combined with stringent controls on internal migration, resulted in a peasantry more tightly bound to the village than at any other time since the end of feudalism in China. Strong ideological and financial support for collective (commune) non-agricultural production led to rapid growth of that sector after 1969, but private production and commerce had to await the rural reforms of late 1978 before expanding their contribution.

II. Collective Non-Agricultural Production

Of all the developments in rural non-farm employment in the first 20 years of the People's Republic, the GLF experiment with commune enterprise proved the most significant. By 1983, more than 31 million people worked in these enterprises, which had generated over 34 percent of total rural income in 1981.[7]

The need to minimize diversion of labor from food production in the aftermath of the GLF was a major impediment to non-farm production in the early 1960s. In addition, the commune economy steadily strengthened through 1965, and private production and marketing were again criticized as capitalist. On May 7, 1966, a directive from Mao Zedong advocated all-round development, including industrial activity, in the communes.[8] If the directive was eventually an important impetus to commune enterprise development, the lack of an immediate growth spurt can be explained by memories of the GLF experience, the shortage of capital in rural areas, and the political and economic dislocation of the Cultural Revolution from 1966 to 1969.

In a 1970 speech to the North China Agricultural Conference, then Premier Chou Enlai argued that team-level agricultural output had risen sufficiently to permit commune enterprise development to accelerate.[9] By the end of the next year the total output value of commune industry had reached 9.2 billion yuan, and construction, transportation, and service income probably drove total income above the 1959 record. Growth was rapid over the next few years, with commune industry total output value more than dou-

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tistical Yearbook 1983), (hereafter TJNJ 1983), Beijing, p. 209. Throughout the paper I use the term "commune enterprise" to include commune and brigade non-agricultural enterprise and team industrial enterprise. The conceptual differences between these entities lack analytical importance in this paper. The recent break up of communes led to these enterprises being renamed "township and district" enterprises. However, "commune enterprise" is a convenient shorthand, still used by Chinese researchers and in this paper.

[6] Interview, 19 August 1981, op. cit.

[7] Employment from "Renmin Ribao" (hereafter RMRB), (People's Daily), 18 March 1983, p. 2. Income from TJNJ 1981, p. 188, adjusted for team industry, TJNJ 1981, p. 135. Comparable income composition data not released after 1981.

[8] See "Duo kuai haoshengde fazhan difang gongye" (Quickly and economically develop local industry), in Hong Qi (Red Flag), 1970, No. 6, p. 86.

[9] Interview with Wang Fenglin, Institute of Agricultural Economics, Chinese Academy of Social Sciences, Beijing, 4 March 1981.

bling between 1971 and 1975, and doubling yet again by 1979.[10] This growth rate far exceeded that of agricultural production in the same period, and commune enterprise income went from 10.6 percent of commune income in 1971 to 34.7 percent in 1981.[11]

Several factors led to the rapid growth and present form of commune enterprise. A national strategy of limiting urban growth coincided with an influx of educated youth and urban cadre "sent down" to rural areas for reeducation during the Cultural Revolution. Access to urban markets, the ability to exploit anomalies in the national planning process, and lower cost and more flexible labor allowed rural enterpreneurs room to create considerable employment and income for their communes.

Between 1964 and 1978 the percentage of the total Chinese population residing in urban places was unchanged. Urban per capita incomes rose nearly 2.5 percent annually over those years and industrial output grew 9.3 percent per year. Per capita rural income rose less than 1 percent a year on agricultural output growth of 5.7 percent annually.[12] In other developing countries this growth pattern would lead to a substantial increase in urbanization, and China's success in preventing that created opportunities for rural industry, especially in the vicinity of urban areas.

Evidence on the importance of urban markets can be gleaned from information available on geographical distribution of income from commune enterprise:

TABLE 2.—COMMUNE ENTERPRISE INCOME PER COMMUNE MEMBER, 1982

[Yuan]

China	93.0	Shandong	122.1
Beijing	473.5	Henan	50.5
Tianjin	368.7	Hubei	73.5
Hebei	83.7	Hunan	73.7
Shanxi	96.0	Guangdong	126.9
Neimenggu	35.2	Guangxi	30.5
Liaoning	165.9	Sichuan	37.1
Jilin	78.1	Guizhou	11.7
Heilongjiang	74.9	Yunnan	28.5
Shanghai	936.0	Xizang	
Jiangsu	262.5	Shaanxi	47.5
Zhejiang	194.2	Gansu	22.8
Anhui	35.4	Qinghai	34.7
Fujian	98.4	Ningxia	37.4
Jiangxi	61.9	Xinjiang	50.6

Source: Guojia Tongjizhu (State Statistical Bureau), "Zhongguo Tongji Nianjian 1983" (Statistical Yearbook of China, 1983), pp. 148, 208.

Shanghai, Beijing, and Tianjin municipalities have by far the highest per capita incomes from commune enterprise. In 1980, 80 percent of the output of commune enterprise in Shanghai and Beijing, and 77 percent in Tianjin, was produced for, or sold to, large urban enterprises.[13] Jiangsu and Zhejiang provinces topped the non-municipalities with per capita income at about half the level of the cities. But within those two provinces, commune enterprise was quite concentrated and clearly urban oriented. Of Jiangsu's 75 counties in 1979, the 8 with the highest commune enterprise income accounted for over 35 percent of such income in the province. All 8 of these counties are in the Nanjing-Shanghai transportation corridor. Zhejiang had 69 counties that year, and the 7 producing 31.2 percent of commune enterprise income are on the Shanghai-Ningpo rail line or coastal area.[14] In both provinces low cost transport to urban markets encourages commune non-agricultural production. While this evidence on the importance of urban markets is less than conclusive, it is supported by extensive interviewing the author did in 1980–82 in sixteen provinces. Commune enterprise managers constantly expressed the conviction that production for the industrial and urban markets offered the largest sales and highest profits.

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[10] Interview, 19 August 1981.

[11] TJNJ 1981, pp. 194-195; Interview, 19 August 1981.

[12] TJNJ 1983, pp. 16,104,492; TJNJ 1981, p. 421; Lee Travers, "Post-1978 Rural Economic Policy and Peasant Income in China," in China Quarterly, No. 98, June 1984, p. 241.

[13] Interview, 19 August 1981.

One important, and overlooked, contribution to commune production and urban marketing efforts was made by both cadre and educated youth sent to villages from urban areas. These groups possessed, or could more easily acquire, the technical knowledge and marketing savvy which is crucial to successful development of rural enterprise. The educated youth, through their parents, and cadre, directly, had contacts in cities which facilitated the marketing of production. In one case, a brigade visited by the author outside of Anshan, Liaoning province, the initial spur to industrial development was the desire of Anshan Steel Works leaders to assure their children of more appealing work than the maize cultivation otherwise available to them.[15] The leaders supplied subcontract work to the brigade, simultaneously financing both the machine tools and raw materials needed to produce the output. Personal contacts can be crucial, even today, if inputs fall under the state plan and originate outside the commune. Historically, no more than 20 percent of commune enterprise output has been included in the state plan.[16] Extraplan distribution of crucial commodities tends to be based on personal connection rather than the market, though this is changing as prices become more flexible.

The presence in the villages of people with urban/industrial backgrounds occurred at a time when the CCP was attempting, for strategic reasons, to disperse industrial activity. This led the state to support subcontracting systems wherein urban factories linked with rural enterprises.[17] Growth based on decentralized subassembly production, with the main factory serving as a contractor and final assembly point, promised not only some protection from military attack, but also minimization of infrastructure development. Transportation arteries would need improvement, but state investment in housing, schools, the rationing system, and a host of other accompaniments to urban-based industrial growth could be avoided. Where infrastructure development was needed, the responsibility could be safely devolved upon the communes, and would thus fall outside central administrative budgets.

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[14] Qi Zong, "Zhongguo Nongcunde Shedui Qiye" (Chinese rural commune and brigade enterprise), in "Zhongguo Jingji Nianjian 1981" (Almanac of China's Economy 1981), hereafter JJNJ 1981, Zhongguo jingji nianjian bianji weiyuanhui (Editorial Commission for the Almanac of China's Economy), Beijing, Zhongguo Guanli Zhazhishe, 1983, pt.IV, p. 56.

[15] Interview, Anshan City, Liaoning Province, 21 September 1981.

[16] Interview, 4 March 1981.

[17] For good examples of this, see Zhang Yi, "Zhongguo Shedui Gongye" (China's Commune and Brigade Industry), in JJNJ 1982, pt. V, p. 95.

From the perspective of urban industry, subcontracting work to commune and brigade enterprise allows increased output while holding down investment. And if the urban enterprise needs to cut back production it can simply terminate the contract, bring the work in-house, and force the commune or brigade to absorb the social and economic costs of reduced employment.

Commune enterprise appears to be the one arena in which rural economic entrepreneurship could exhibit itself through the 1970s. Crop and animal production took place under an unfavorable price regime and tight state planning. As mentioned earlier, commune enterprise itself was rarely included in state plans, and while this increased the difficulty of obtaining certain inputs at state prices, and meant that sales were not guaranteed, it also left managers leeway in marketing.

Competitive advantages of commune enterprise now include a low cost labor force flexibly employed and the freedom to exploit state pricing anomalies. Commune leaders strongly support enterprise development because profits are a source of direct income to the brigade or commune. Income from team level crop cultivation and animal husbandry is difficult to arrogate to higher collective levels. Patronage possibilities in the assignment of enterprise jobs provide another incentive for commune leader support.

Twenty years ago most rural Chinese working outside of agriculture did so in ways not terribly different from their forebearers. Blacksmiths, stonemasons, leather workers, carpenters, furniture makers and tailors all worked with traditional technologies. Even those organized in cooperatives benefited not from modern tools, but primarily from economic advantages conferred by the state—more favorable taxation and better access to inputs, for example. Markets, products, and techniques were largely unchanged.

Today rural cobblers still use traditional techniques to make leather shoes, but injection molding machines to make plastic sandals. Commune machine shops forge horseshoes and machine tractor transmission gears. Bricks and cement are marketed in the commune store and shoes are exported to America. The choice of technique and product reflects location, serendipity, politics, and managerial skill.

Commune enterprise now dominates the supply of certain commodities to the national economy. Over 75 percent of the bricks and tiles, and 90 percent of lime, sand, and gravel produced in China come from commune enterprises. One-third of the hydroelectric capacity is provided by commune enterprises, as is one-sixth of the coal output.[18] Industrial output of commune enterprises increased from 3.2 percent of total Chinese industrial output in 1971 to 11.2 percent by 1982.[19]

The aggregate contribution of commune enterprise to rural nonfarm employment and output has been impressive:

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[18] Hydropower: RMRB, 18 August 1982, p. 2; Construction materials: RMRB, 17 October 1981, p. 2; Coal: Interview, Institute of Industrial Economics, Chinese Academy of Social Sciences, Beijing, 28 February 1981.

[19] TJNJ 1983, pp. 150, 215.

TABLE 3.—COMMUNE ENTERPRISE OUTPUT AND EMPLOYMENT

Year	Total output value (billion yuan)	Total income (billion yuan)	Employment (million)
1971	9.2		
1972	11.0		
1973	12.8		
1974	15.4		
1975	21.5		
1976	27.2		17.9
1977	39.1		
1978		43.1	
1979		49.1	29.0
1980		59.6	30.0
1981		67.0	29.7
1982		77.2	31.1
1983		85.1	31.0

Source: Total output value: Interview, Ministry of Agriculture, March 4, 1981.

Total income: 1978, 1979: Interview, Academy of Social Sciences, August 19, 1981. 1980: TJNJ 1981, p. 190. 1981, 1982: TJNJ 1983, p. 206. Renmin Ribao, March 18, 1984, p. 2.

Employment: 1976, 1979: Ma Hong, ed. "Xiandai Zhongguo Jingji Shidian" (Reference Book on the Contemporary Chinese Economy), Zhongguo Shehui Kexue Chubanshe (Chinese Social Sciences Press), Beijing, 1982, p. 140. 1980–1983: as for Total income.

Though employment creation slowed beginning in 1980, in 1982 commune enterprise still provided 9.2 percent of total commune employment.[20] Output per worker and net income continued to grow rapidly, and new opportunities for private non-farm enterprise absorbed labor not needed in commune enterprise.

III. Private Non-Farm Enterprise

Private marketing activity and household handicraft production for self-consumption and the market were permitted until the GLF and, after that failure, again until the early stages of the Cultural Revolution. As described earlier, full-time private handicraft and commerce had been absorbed into cooperative by the late 1950s, but many of these activities were again private by the early 1960s. Beginning in the mid-1960s, and continuing until 1980, any significant private non-farm production was viewed with suspicion, and, in most provinces, tightly controlled.[21]

The agricultural development policy ratified by the Communist Party leadership in December 1978 asserted the legitimacy of private plots, "domestic side-occupations," and rural free markets.[22] "Domestic side-occupations" include private work in industry, construction, transport, commerce, and other services. Peasants responded quickly to the opportunity for such work, and net income from these sources jumped from about 10 yuan per capita in 1978 to 51 yuan per capita in 1983, or from 7.7 percent to 18.7 percent of a rapidly increasing net peasant income.[23]

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[20] Table 3 and TJNJ 1983, p. 148.

[21] Zhang Sigian, "1980 niande Zhongguo Nongye" (China's Agriculture in 1980), in JJNJ 1981, pt. IV, p. 14.

[22] "Zhonggong zhongyang guangu jiakuai nongye fazhan ruogan wenti de jueding" (Decision of the Central Committee of the Chinese Communist Party on some questions on the acceleration of agricultural development), in JJNJ 1981, pt. II, pp. 100–107.

[23] Foreign Broadcast Information Service (FBIS), China Report, Agriculture, 1984, No. 29, 1 November 1984, pp. 3–5.

The key element of the new rural policy was the shift to private, rather than collective, responsibility for crop and animal husbandry. The implementation of this "household responsibility system" forced recognition of the substantial surplus of labor engaging in crop production.[24]

The household responsibility system was implemented in the absence of efficient markets for staple foods. To remedy this, intially each family was given grain land and the responsibility for food self-supply. This seriously inhibited specialization in both agricultural and non-agricultural production, especially in the wealthier communes, which often already had a high degree of internal specialization. The resulting inefficiencies have been counteracted by continually loosening control over staple food marketing. For families engaging entirely in non-crop production, at least tacit acceptance of practices such as hiring agricultural labor or renting out land facilitates specialization. In fact, concentration of farm land in the hands of the most able farmers has become a policy goal.[25]

While the importance of specialized households varies considerably across China, by 1984 approximately 14 percent of all households specialized, two-thirds of those in non-crop activities.[26] This growth, as suggested above, has been aided by the development of rural markets. The markets allow acquisition of both food and non-food inputs, and, along with urban free markets, are an outlet for production. The Supply and Marketing Cooperative system, in theory, played this role in the past. That system was renowned, however, for its lack of flexibility and unresponsiveness to farmer's needs. While free markets do not guarantee access to inputs, or profits for non-crop production, they nonetheless facilitate its expansion. The table below shows the rapid pace of free market growth:

TABLE 4.—FREE MARKETS

[In billion yuan]

Year	Total number	Total sales	Rural sales	Urban sales
1978	33,302	12.5	12.5	
1979	38,993	18.3	17.1	1.2
1980	40,809	23.5	21.1	2.4
1981	43,013	28.7	25.3	3.4
1982	44,775	32.8	28.7	4.1
1983	48,003			

Source: 1978-1982: TJNJ 1983, p. 386. 1983: Guojia Xingzheng Guanli Zhu Shichang Si (National Administrative Management Bureau, Market Office), "1983 Nian Cheng Xiang Jishi Maoi Qingkuang" (The Situation in Urban and Rural Peasant Markets in 1983), in "Zhongguo Jingji Jibao" (Chinese Economic Quarterly), 1984, No. 2, p. 32.

Some rural cadre opposed the privatization of rural production. This group of team, brigade, and commune leaders faced considerable loss of power under the new system. Their previous control of the production process was lost, that over input and output marketing diminished, and the collective resources remaining under them are often negligible. In reaction, many cadre have attempted to block the new policy through either administrative fiat or arbitrary taxes and fees.[27]

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[24] See Frederick Crook's article in this volume for a thorough discussion of institutional change in agriculture.

[25] See Communist Party of China, "Circular on Rural Work in 1984," found in FBIS, Daily Report, China, No. 115, 1984, 13 June 1984, pp. K 1-11.

[26] FBIS, China Report, Agriculture, 1984, No. 29, 1 November 1984, pp. 3-5.

Despite cadre opposition to institutional reform in some locales, a speech by a vice-premier, Wan Li, suggests that they may be particularly well placed to benefit from the new rules.[28] Wan Li reports an investigation into 20,989 households engaged in specialized production in Shanxi's Ying County. Current or past production team or brigade cadre head 43 percent of these households. Another 42 percent are headed by educated youth or former military people. We don't know the percentage of these groups in the population as a whole, but they appear to be substantially overrepresented in the specialized households. Wan Li argues that the reason for the overrepresentation of these people is their greater social experience, hence adaptability to new government policy. While this argument is probably well founded, an even more compelling argument presents itself. As the elite in China's rural villages, these people have better access to resources than do other villagers. Cadre, in particular, are well placed to ensure supplies of raw material and access to credit, and are better acquainted with marketing channels. Many stories have been published of cadre corruption involving diversion of hard-to-find resources to themselves, friends, or family; a problem also noted in Wan Li's speech. Such corruption need not be blatant. Villagers and outsiders dealing with the brigade or team need only be sensitive to relative power in the village to offer business opportunities or preferred terms to cadre. Of course, additional income may not adequately substitute for loss of political power, or compensate someone committed to collective production as a model of social organization.

Private rural production has complicated government attempts to capture a portion of the rural economic surplus. Prior to 1978, price and quota policy were the tools used to capture agricultural surplus. Collective non-agricultural production paid taxes, but private non-agricultural production escaped them, since so little went to market. Burgeoning output and market sales have attracted the attention of tax authorities, as has the problem of equalizing the tax burden across agricultural and non-agricultural households. Existing tax schedules provide for manufacturing and service industry excise taxes ranging from 5 to 15 percent of sales for most undertakings.[29] The additional "private economy income tax," which predates the 1978 reforms, contains very high marginal tax rates. A family of four specializing in private non-crop enterprise and netting the national average 1983 peasant income of 310 yuan per year, would be subject to a tax with a 56 percent marginal rate.[30] The tax rate climbs to 86.8 percent for income above 5,000 yuan a year, while collective and state workers are subject to a personal income tax only at [illegible] income exceeds 7,200 yuan a year, and then are taxed at a m[illegible] lower rate. In addition, localities can impose any number of fees, and while these are supposed to be linked to the service received (such as market supervision), they are often arbitrary.[31] On top of taxes, an obligation to work on government projects can be imposed on all peasants. Hebei province set a 1984 standard of 20 days per year of obligatory work.[32]

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[27] For examples, see RMRB, 24 April 1984, p. 2; Shaanxi Ribao, 31 August 1984, reported in FBIS, China Report, Agriculture, 1984, No. 28, 16 October 1984, pp. 81-84; and FBIS, China Report, Agriculture, 1984, No. 25, 20 September 1984, pp. 48-52.

[28] RMRB, 8 January 1984, pp. 1, 2.

[29] Nongye Jishu Jingji Shouce Bianweihui (Editorial Commission for the Handbook of Agricultural Technical Economics), ed., "Nongye Jishu Jingji Shouce" (Handbook of Agricultural Technical Economics), Nongye Chubanshe, Beijing, 1983, pp. 833-853.

[30] RMRB, 30 April 1984, p. 2; "Nongye Jingji Shouce," op. cit., p. 854.

Proper handling of tax and service obligations vexes both local and central authorities. News reports speak of tax evasion on the one hand and confiscatory taxation on the other. The very high tax rates on private income provide a clear incentive to cheat, and yet if successfully implemented would be a strong disincentive to private production and marketing. The challenge of capturing at least a portion of the surplus generated through implementation of the new policies, while not inhibiting growth of the surplus, will continue to test administrators.

IV. EMPLOYMENT AND INCOME

Rural non-agricultural production and service enterprises contribute to the economy in many ways. They are a source of low cost wage goods and manufacturing inputs to urban areas and a source of tax revenue for the government. But in the drive to increase agricultural production efficiency, the state has assigned non-crop enterprise the particular role of absorbing surplus rural labor. The 1982 rural collective labor force of 333 million people was 110 million larger than 1957, while farming a smaller, yet much more mechanized, sown acreage.[33] Labor efficiency in agriculture could not increase unless much of the labor force moved into alternative types of production. The effectiveness of non-agricultural labor absorption efforts can be seen from the table below:

TABLE 5.—*Peasant non-agricultural employment, 1983*

	Millions
Commune enterprise	31
Peasant joint enterprise	2
Private retail places	4
Specialized households	30
Total	67

Sources: Commune and peasant joint enterprise: RMRB, 18 March 1984, p. 2.
Private retail places: FBIS, China Report, Agriculture, No. 29, November 1, 1984, p. 4.
Specialized households: Figure derived using the estimate of the percentage of households in non-agricultural production in the above citation, and the average number of laborers in a commune household, from TJNJ 1983, p. 148.

Note that employment in private commercial enterprise now exceeds that in collective enterprise. Additional peasant non-crop employment is provided by casual labor in urban areas or on state projects, and for members of non-specialized households in activities other than collective enterprise or retail operations. Reliable employment figures for this are not available, but the contribution of remittances from such labor to peasant income has risen from 6.9 percent to 10.1 percent of a quickly increasing total.[34] The employment total in the table should be taken as a lower bound. At least 20 percent of commune members appear to have non-agricultural employment, and since such employment appears to be voluntary, we can assume that it provides a return greater than the alternative of farming. Total peasant income from non-farm employment cannot be calculated with data now available, but the 18.7 percent contribution to net peasant income cited earlier, coupled with the 10.1 percent remittance income, indicates a non-farm income pecentage about 30 percent. Direct comparison with the 1950s figure of 20 percent of income provided by sideline production is not possbile. The 1950s data include more production for self-consumption than do the later data.

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[31] FBIS, China Report, Agriculture, 1984, No. 25, 20 September 1984, pp. 48–52; and 1984, No. 24, 10 September 1984, pp. 13–16.

[32] Hebei Ribao (Hebei Daily) in FBIS, China Report, Agriculture, 1984, No. 25, 20 September 1984, p. 50.

[33] TJNJ 1983, pp. 120, 154, 186.

V. Conclusion

The rapid growth of non-crop rural enterprise experienced over the past six years is so closely coupled with vigorous central efforts at providing ideological and administrative justification for the changes that it clearly would not have occurred in the absence of such support. But the tremendous success of the new policy—and its undeniable evidence of the cost of the old, restrictive, policy—should soon, if it has not already, make a substantial reversal infeasible. Policy on non-crop enterprise is inextricably linked with the development of the household responsibility system in crop production, and that policy itself seems unassailable short of rural economic disaster. In fact, the issue is now one not of direction, but the division of the output gains.

The stage is set for continued growth. The speed of that growth depends on continuity of policy, decent weather for crops, and the success of industrial reform, for the latter will determine price policy. Freer pricing and markets favor rural entrepreneurs, who in any case generally lack the protection provided urban collective and state enterprise, and hence have developed comparatively good marketing skills. The role of the peasant as entrepeneur, on or off the farm, is still tenuous, but certainly more secure than at any other time in the last 30 years.

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[34] TJNJ 1983, p. 499.

WATER POLITICS AND ECONOMIC CHANGE IN CHINA[1]

By David M. Lampton*

CONTENTS

Page
I. Introduction 387
II. The Challenges 388
  Flood Control 389
  Land Use and Encroachment 391
  Erosion and Pollution 394
  Interregional Water Transfers 396
  Water Conservation and Water Utilization 398
III. The Political System 400

I. INTRODUCTION

China's serious water problems for today will become increasingly burdensome constraints in the future unless remedial efforts are undertaken now. In simply describing these difficulties, one learns much about the system which generates them. However, the political system is important not just as a "source" of some of these problems, it also is important because it must fashion and implement "solutions" to them. Water politics revolves around the twin issues of who gets water (and its derivative resources) when there is not enough, and who must take it when there is too much. During floods, one must find a place to put literally cubic miles of excess water. Coping with floods and droughts, and allocating scarce derivative resources, are matters in which the political system, its values, and its processes stand out in bold relief. Water, because it crosses administrative boundaries, forces different organizations and administrative units to do what they most abhor—deal with each other. The intersection of dynamic problems and static organizations is a superb vantage point from which to view any political system—particularly China's.

The questions which this article addresses simply are: What are China's water problems? What general characteristics of the political system affect its capacity to fashion appropriate responses?

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[1] The field research for this paper was conducted in the People's Republic of China during November, 1980 and August-December, 1982. I would like to thank the Committee on Scholarly Communication with the People's Republic of China and Ohio State University for supporting my research in Hubei and Beijing. Also, I would like to collectively thank the many Chinese colleagues at the Yangtze River Valley Planning Office, the four dam sites I visited in Hubei, Wuhan University, the Wuhan Institute of Hydrology and Electric Power, the Ministry of Water Conservancy and Electric Power, the State Planning Commission, the Ministry of Urban Construction and Environmental Protection, and the Machine Building Ministry. I, however, am responsible for any possible errors of fact or interpretation. An earlier and abridged version of this article appeared in *The China Business Review*, July-August, 1983, pp. 10-17.

And, what specific problems have the Chinese had in implementing those policies? The answers to these questions are one vantage point from which to assess the prospects for economic and political change in China as we approach the Twenty-First Century.

II. THE CHALLENGES

Some Chinese already are arguing that the "water crisis" is bigger than the country's widely acknowledged energy woes. Using water consumption and output value ratios for Tianjin, for instance, they argue that each 10 billion yuan (1 U.S. dollar equals approximately 2.8 yuan) increase in output value nationally will require four new reservoirs, each with a capacity of 100 million cubic meters of water.[2] To feed future growth, reservoirs must be started now. Even today, water shortages in selected areas of north China have produced partial plant shutdowns.[3] Insufficient river flows, in at least one instance, have temporarily halted shipments in and out of a large critical production facility. In central China (Henan and Hubei Provinces, for example), large areas that existent reservoirs were designed to irrigate remain unirrigated because of shortages. Planned economic growth, combined with inevitable population increases, can only exacerbate these problems. As one Chinese commentator put it, "The excessive density of the population has given rise to ever sharper contradictions between supply and demand, where water resources are concerned."[4] It is estimated that industrial water consumption in the year 2000 will be three to four times higher than today's.[5]

One must acknowledge the important achievements of the Chinese to date. Irrigated acreage now embraces about 48% of all cultivated land and, from 1949–1980, more than 86,000 small, medium, and large-scale reservoirs, and 160,000 km of dikes, embankments, and seawalls, have been built or renovated.[6] There have been no dike breaches along the Yellow River since 1949 (though there has been some intentional diversion) and the damage caused by floods along the Yangtze River (such as the 1954, 1981, and 1983 crests) has been reduced by numerous diversion, storage, and drainage projects. Water-logged acreage has been reduced significantly since 1949.[7] In looking to the uncertain future, then, one should not forget the accomplishments of the past.

To ensure a sufficient supply of water for human use and economic growth, at least five interlocking problems must be addressed:

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[2] Zhongguo Shuili (China Water Conservancy), hereafter CWC, No. 4 (1981), p. 7.

[3] FBIS, No. 200 (1983), p. K14.

[4] Foreign Broadcast Information Service (hereafter FBIS), Daily Report: China, No. 227 (1981), p. K5. Vice-Premier Wan Li delivered a speech in February (1983) in which he said, "The thing that will affect future construction in North China is neither the problem of energy nor the problem of human resources . . . The deciding factor for economic development in North China is water." FBIS, No. 98 (1983), p. R1.

[5] FBIS, No. 200 (1983), p. K14.

[6] CWC, No. 3 (1982) in file 64; also FBIS, No. 126 (1981), p. K60; also CWC, No. 3 (1981), (File 13); CWC No. 1 (1982), p. 4.

[7] FBIS, No. 126 (1981), p. K60.

FLOOD CONTROL

The 1981 and 1983 Yangtze floods reminded both outside observers and the Chinese elite what the peasant who lives along major rivers never forgets: floods can inflict staggering losses. Even flood control efforts, however, contain within themselves a contradiction. As rivers become "safer," people build in more exposed areas so that potential economic losses can increase with flood control efforts. The higher agricultural yields become, and the more factory construction which occurs along inland waterways, the greater become potential economic losses. Land use rules must accompany flood control development and, as we shall see, they have not. The principal geographic foci for today's economic development are the North China Plain, the middle and lower reaches of the Yangtze River, and the Pearl River Delta. In China, "building on the best" means building in river basins and estuary areas. The floods of the future could inflict economic losses far in excess of those of the past.

Moreover, the flood control standard along China's main inland water system, the Yangtze, still is comparatively low. Most stretches now are able to withstand floods of only a 10–20 year frequency.[8] If a flood like that of 1954 hit the Yangtze Basin,[9] Chinese planners estimate that as many as 7 million persons could be displaced and economic losses could reach 20 billion yuan.[10] The much smaller and regionally localized 1981 Yangtze flood, according to Chinese figures, caused 2 billion yuan in direct economic losses, left 1.13 million persons homeless,[11] 2,600 factories were wiped out,[12] 98,000 hectares of farmland were covered with debris,[13] and 340,000 mu (1 mu equals .0667 hectares) of reclaimed land simply was swept away.[14] In the July 1983 floods, about 70,000 homes and more than 290 factories were flooded in Wuhan [15]—80 counties and 8 million persons were affected in Sichuan Province, with estimated income losses there of 200 million yuan.[16] Extensive inundation also hit Hunan, Anhui, and Jiangxi provinces at the same time.

Along the Yellow River, the situation also is worrisome. With the silt-laden water inexorably raising the streambed, literally interminable and costly dike raising projects are required. During the 1950–1978 period, the streambed rose about 2 meters in the lower reaches and, until water and soil conservation in the upper and middle reaches is effectively carried out, this process will continue. Indeed, in some stretches of the river between Zhengzhou and the estuary, the river "has already been 10 to 20 meters above the ground." [17] Chinese hydrologists even now predict that a Yellow

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[8] CWC, No. 4 (1981), p. 7; CWC, No. 1 (1982), p. 5.

[9] CWC, No. 1 (1982), p. 5; asserts 1954 flood was a "40 year" flood.

[10] CWC, No. 1 (1982), p. 20.

[11] China Reconstructs, December 1981, p. 7.

[12] The Washington Post, September 8, 1981, p. A17.

[13] China Reconstructs, December 1981, p. 7.

[14] FBIS, No. 91 (1982), p. Q2.

[15] FBIS, No. 131 (1983), p. P1.

[16] FBIS, No. 152 (1983), p. Q1.

[17] The quotation is from Beijing Review (hereafter BR), No. 31 (1984), p. 30; CWC, No. 3 (1982), p. 5.

River water level such as that of 1958 would create "a grave situation." [18] Moreover, in Shaanxi Province it was revealed in late-1983 that there were "142 unsafe reservoirs." [19] China's other principal rivers present problems too, with major floods having occurred along the Sung-Liao system in 1960, the Hai in 1963, and the Huai in 1954, 1975, and 1983.[20] Bluntly, the meteorological clock is ticking; the potential remedies are enormously costly and require long lead times to complete. As one example, a Chinese professor at the Shandong Institute of Oceanography has estimated that 700 million cubic meters of silt would have to be dredged from the mouth of the Yellow River to eliminate the need to reinforce the dikes along the middle and lower reaches.[21] So large are the problems, so expensive are the "solutions", and so desperate is the need for water in the Yellow River Basin, Vice-Premier Wan Li and other central leaders visited the region looking for solutions in June and July 1984. Wang Huayun, former vice-minister of water conservancy, recently summed up the situation on the Yellow River as follows:

> There is still the threat of flood and soil erosion on the loess plateau is still very serious. Only 10 percent of the power capacity of the river and its tributaries is now being utilized. Our ability to regulate the flow is still very low.[22]

Just looking at the Yangtze River Basin, many of China's flood control planners argue that the most cost effective strategy is to build a high storage dam in the Three Gorges of western Hubei Province. This could back up water clear to Sichuan's major city of Chongqing, a project so grand that it even caught Mao Zedong's poetic sense in 1956—he wrote a poem entitled "Swimming." Cost estimates by different Chinese authorities vary widely, ranging from a high estimate of between 40 and 50 billion yuan [23] down to a low of 12.5 billion, including population displacement costs.[24] No matter what the figure, it would constitute a very large chunk of China's capital construction budget. Just to provide some perspective, planned budgetary allocations for capital construction in the draft 1983 national budget were 36.18 billion yuan.[25] For the entire 6th Five Year Plan (1981-85), planned yearly appropriations for capital construction (including foreign loans) were slated to average 34 billion yuan.[26] Every day that the Three Gorges project is delayed, costs and population displacements presumably grow. Given the enormous cost of this and other major dam undertakings, it is unsurprising that the Chinese made clear in March 1984 that "Technical cooperation and foreign investment are being welcomed. . . " [27]

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[18] Ibid.

[19] FBIS, No. 152 (1983), p. T2.

[20] CWC, No. 3 (1982), p. 4, also, FBIS, No. 144 (1983), p. K2.

[21] BR, No. 31 (1984), p. 30.

[22] China Reconstructs, July 1984, p. 40.

[23] CWC, No. 2 (1981), p. 33; also, "Ren Min Chang Jiang," (People's Yangtze River), No. 5 (1980), pp. 15-22.

[24] "People's Yangtze River," No. 5 (1980), pp. 15-22.

[25] FBIS, No. 232 (December 2, 1982), p. K3.

[26] BR, No. 21 (1983), p. V.

[27] FBIS, No. 63 (1984), p. K10.

Because of the displacement, land, and capital costs, some persons in the State Planning Commission's Office of Agriculture, Forestry, and Water Conservancy (as well as representatives of other ministries who fear that such large allocations to one project will dry up funds which might otherwise be available to them) argue that, instead of the Three Gorges project, emphasis should be placed on dikes which, they assert, would be cheaper, would occupy less agricultural land, and would employ China's abundant manual labor power. The Yangtze River Valley Planning Office, on the other hand, vigorously disputes this contention, pointing to the increasing danger of ever higher dikes, the mammoth quantities of earth and stone which would need to be moved in order to appreciably enhance flood control standards, and the structural weakness of the foundations of some of the basin's most strategic dikes. Sichuan Province has preferred a different approach, arguing that it would be better to build a series of smaller storage dams upstream rather than one gigantic project at its eastern border which would inundate large tracts of the province's most valuable real estate.

Information I have indicates that Beijing recently has decided to launch the Three Gorges project approximately three years from now, despite the fact that major design and financial details remain unresolved. It remains to be seen if the project is launched. If it is, it is unlikely that the construction schedule of 15 years will be achieved. China's experience of long construction times at other big projects suggests that a 15 year plan is optimistic. And, what will happen along the Yangtze in the interim?

LAND USE AND ENCROACHMENT

Land arguably is China's most precious resource. An expanding population, increasing industrial and urban sprawl, a housing boom in the countryside, erosion and desertification, and the inundation of large tracts of farmland by reservoir projects, cumulatively have produced a decline in China's net stock of agricultural land. Though some outside observers assert that peasants are "hiding" land from the authorities, as peasants have done for eons, the government genuinely is alarmed. A recent Beijing Review article noted,

> China's farmland covered 111.33 million hectares in 1957, but it dropped to 99.33 hectares in 1977. However, this figure includes 17 million hectares of farmland reclaimed from wasteland during this period, so the country actually lost 29 million hectares of farmland during those 20 years, an area equal to the total area of farmland of Shandong, Hebei, Henan and Heilongjiang Provinces in 1979.[28]

China's per capita farmland has dwindled to one-third that of the corresponding world average figure.[29]

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[28] BR, No. 29 (1982), p. 6.

[29] FBIS, No. 107 (1983), p. K12

Now that household incomes are most directly linked to household entrepreneurship, peasants are trying to secure land wherever, and however, possible. Rising peasant incomes have set off a housing boom that requires land. In river basin and lake areas, this land hunger takes the form of filling, or otherwise encroaching upon, lakes, ponds, and rivers, as well as building on dikes and in diversion areas. Factories and enterprises, anxious to expand, have built in areas which are vulnerable to flash floods and inundation. This obviously escalates potential flood losses.

In the central Yangtze River region, the surface area of Hunan Province's Dongting Lake has declined from 4,350 km^2 to 2,740 km^2 during the last three decades.[30] While admittedly not all of this is due to peasant encroachment (siltation from upstream erosion also is very important), this decline is exceedingly worrisome. It reduces aquatic production potential, it further constricts inland navigation and, most importantly, it diminishes the capacity of the middle reaches of the Yangtze River to safely store flood waters. This critical equalizing function of the middle reaches lakes has been recognized since at least the Ming Dynasty (1368 A.D.-1644 A.D.). As Dongting's surface area (and the surface area of lakes throughout China) diminishes, more diversion or storage capacity must be built simply to replace what nature initially provided. Referring to the middle and lower reaches of the Yangtze River more generally, one widely read Chinese daily reported, "According to our incomplete statistics, during the past 20 years the water area has continuously decreased. The lake area has decreased by 16 million mu and the fish catch has declined."[31]

Responding to this problem, the State Council recently declared that it is necessary to "protect lakes in order to regulate surface runoffs and achieve an ecological balance. . . . No unit is allowed to seize land or water surface area. . . ."[32] Clearly, though, this policy of restraint is working against the combined momentum of an expanding rural population and economic policies designed to maximize rural production incentives—an unintended side-effect has become a major policy problem.

Effective zoning is almost non-existent. One interviewee recounted the perversity of the growth process. In one Hubei county, the state built a new storage and irrigation reservoir. Thinking that they could now depend upon the state project for water, local peasants filled-in about 70% of their ponds, trying to expand their land area.[33] In a huge irony of enormous consequence, it is as if the Chinese government were taxing and conscripting peasants to dig reservoirs by day, only to have them steal into the night and fill them in. One recent account observed, "The crux of the land problem is the lack of unified scientific control. Scientific land control includes legislation, investigation, planning, registration, statistics, and approval and supervision for its use."[34]

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[30] CWC, No. 2 (1981), p. 32; see also CWC, No. 3 (1982).
[31] FBIS, No. 171 (1984), p. K20.
[32] FBIS, No. 117 (198[illegible]), p. K18.
[33] Interview No. 3, WIWCEP (1982).
[34] FBIS, No. 150 (1983), p. K22.

A similar perverse process has been occurring with respect to inland navigation. While it universally is conceded that inland waterway transport is a cheaper way to move bulk freight, the 1965–1979 period witnessed over a 30% decline in the length of China's navigable waterways.[35] From 1961 to 1982, the length of navigable waterways nationally dropped from 170,000 km to 108,000 km, a 37% decline.[36] As a result of these declines in navigable waterways, "the share of freight volume carried on inland waters dropped from 14% in 1957 to 7% in 1981."[37] The length of navigable waterways in central China's Hubei Province declined annually and, partly as a result, water-borne freight volume dropped from 56% of total road and water freight volume in 1957 to 37% in 1979.[38]

Why is this occurring? Chinese interviewees and documentary evidence converge on the following factors: dam construction has paid insufficient heed to the needs of navigation; factory construction frequently has obstructed smaller tributaries; there has been extensive siltation of streambeds due to erosion; and, insufficient funds have been provided for channel maintenance, much less improvement.

Railroads have received a much larger share of capital construction investment than has inland river development, despite the fact that investment per unit of water-borne freight capacity is less than one-half that needed to create equivalent rail capacity. Moreover, railroads occupy extensive tracts of farmland.[39] At precisely the time that China's leaders are seeking to conserve farmland, a process of river deterioration is underway, in no small part due to poor land use policies, weak enforcement of what guidelines there are, and suboptimal investment patterns. For example, speaking of the Yangtze River, Bright Daily reports,

> . . . the investment in dredging the river for transport is only one-fifth of that for building a road of the same length, and is even lower than that for building a railway, but the transport capacity is much larger than a road or a railway . . . Since the founding of the PRC, the state investment in Chang Jiang river's shipping industry has totaled 3.05 billion *yuan, which is only one-fourth of the investment in the Xiangyang-Chongqing railway.*[40] (emphasis added)

Many, but by no means all, of these problems are political in origin. Solutions must be sought within the political system. A fascinating question about which we need to know a great deal more is simply this: Why are some ministries so much more powerful than others (e.g. railroads vs transport), even when their preeminence is demonstrably economically counterproductive? Part of the answer has to do with revenue generating capacity (an artifact of the price system), cumulative inequalities stemming from past favored treatment, leadership and elite relationships, and the resistance of powerful vested interests. Nonetheless, we need to know much more about this important aspect of politics in China today.

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[35] China Economic Yearbook, 1981, p. VI-18.
[36] FBIS, No. 20 (January 28, 1983), p. K20.
[37] Ibid.
[38] EERM (See author for full citation), No. 51 (1981), p. 50.
[39] EERM (See author for full citation), No. 51 (1981), p. 47.
[40] FBIS, No. 71 (1984), p. K23.

EROSION AND POLLUTION

The current drive to accelerate economic growth has created tremendous pressures on the forests and water quality. Present policies which increase household incentives to produce new sources of income have created additional pressures manifest in what Beijing Review describes as the "wanton felling of forests and destruction of other natural resources."[41] China's former minister of forestry, Yong Wentao, made the surprising admission in 1981 that "The degree of destruction (of forests in the upper reaches of the Yangtze Basin) became more serious since the founding of new China."[42] In 1979, China, by its own account, ranked 120th in the world in the percentage of its land area covered by forests (12.7%), [43] and one-sixth of the country's land area now is classified as eroded. Eroded area expanded between the early 1950s and 1983, growing from 1.16 million km^2 to 1.5 million km^2. About 5 tons of soil are lost in China for every man, woman, and child every year.[44] Immediately after 1949, approximately 19% of Sichuan Province's land area was forest covered; by 1982, this figure had declined to 13.3%.[45] Even more dramatically, Sichuan's Wusheng County, hard hit by 1981's floods, had 10,000 hectares of forested area in the 1950s; during the 1966-1976 era (we now are told), this was reduced to 56 hectares.[46] Situated upstream, these problems in Sichuan inevitably will affect the entire Yangtze Basin.

In the Yangtze Basin, erosion is serious, with the heavy silt load (there is some debate about whether or not the silt load is increasing) reducing lake surface areas, obstructing inland navigation, shortening the useful life of hydraulic projects, and further diminishing the absorptive capacity of upstream areas. Topsoil is being washed from where it is needed to where it is a problem. Against this background, Sichuan's former first Party secretary, Tan Qilong, flatly stated in the Party's theoretical journal, Red Flag, that, "The 1981 Sichuan flood, which caused disastrous damage to vast areas of the province, was brought about by the drastic reduction of forest land in northern Sichuan."[47] While there is debate over the degree to which deforestation was responsible for the 1981 Yangtze River floods (with Sichuan Province and the Ministry of Forestry asserting that the disaster proves more forestry investment is required and the Ministry of Water Conservation and Electric Power countering that the inundation shows that more storage dams are essential),[48] all parties concede that erosion is an increasingly grave problem. The Yellow River's erosion problems are even more serious (as mentioned above) with silting in the river's middle and lower reaches threatening the security of vast downstream areas.[49] In Gansu Province, 2 million *mu* of forest and grass are damaged by fuel acquisition yearly and there is a yearly decline in the net stock of forested area. "In the end, people have to go in for extensive cultivation; and a vicious cycle is formed when the more land they reclaim, the poorer they become; the poorer they become, the more wasteland they reclaim."[50]

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[41] BR, No. 25, June 21, 1982, p. 9.
[42] FBIS, No. 186 (1981), p. K20.
[43] Current Events Information Handbook, Xinhua (1981), p. 101.
[44] BR, No. 17 (1983), p. 22.
[45] FBIS, No. 91 (1982), p. Q2.
[46] BR, No. 36 (1981), p. 8.
[47] FBIS, No. 9 (January 13, 1983), p. Q1.
[48] FBIS, No. 9 (January 13, 1983), pp. Q1-Q2.

The litmus test for judging the commitment of China's leaders in dealing with the erosion problem will be whether or not forestry investment climbs, whether or not forests can, in the words of Tan Qilong, be closed off for a few years,[51] and whether or not lumber imports rise in order to give forests a respite from cutting.[52]

Pollution, while serious, is a subject about which only limited information is available. Looking first just at the Yangtze River, the Chinese report that "At present (1984), 26 million metric tons of polluted water flows every day into the Chang Jiang (Yangtze) System. This means every year nearly 10 billion metric tons of polluted water flows into it." [53] According to Chinese Ministry of Water Conservancy and Electric Power figures, in the early 1970s, the nation discharged 40 million tons of polluted water daily; by 1979, that daily discharge rate had climbed to 72.58 million tons, an increase of over 80%.[54] Put another way, "for every 14 cubic meters of natural water available to China, one cubic meter was untreated wastewater."[55] Industrial waste accounted for about four-fifths of the 1979 discharge. Speaking of Beijing Municipality, a recent U.S. Government report observed that,

> More than thirty rivers and underground streams have been polluted by the daily discharge of nearly two million cubic meters of effluent and more than five million tons of solid wastes, produced mainly by the city's 3,700 factories, of which nearly 2,000 are located in the central city.[56]

In a recent scientific gathering to discuss Lake Taihu in the lower Yangtze Valley, the link between industrial growth and water pollution was made explicit. "The irrational distribution of industry, for instance, has resulted in environmental pollution and damage to its (Lake Taihu's) aquatic resources." [57] In talking about Hubei's Lake Honghu, a recent survey showed it to be one of the few unpolluted large inland lakes on the middle and lower reaches of the Changjiang (Yangtze) River.[58] Indeed, an official 1979 survey found that all of China's major rivers are seriously polluted.[59] Ground water purity also has become a problem, with the Chinese acknowledging that ground water in some urban areas already is being contaminated, in some cases severely.[60]

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[49] FBIS, No. 121 (1982), p. K11.
[50] FBIS, No. 198 (1983), p. T1.
[51] FBIS, No. 9 (January 13, 1983), p. Q1.
[52] FBIS, No. 186 (1981), p. K20.
[53] FBIS, No. 71 (1984), p. K20.
[54] CWC, No. 2 (1982), p. 19.
[55] Vaclav Smil, "Rivers of Waste." The China Business Review (July-August 1983), p. 18.
[56] State unclassified cable R100045Z, March 1984—Beijing 03882.
[57] BR, No. 46 (1982), p. 6.
[58] BR, No. 46 (1982), p. 5.
[59] Smil, p. 18.
[60] CWC, No. 2 (1982), p. 19.

In China as elsewhere, frequently one set of policy objectives conflicts with another. The drive to increase coal and other industrial output, for instance, has led to mining and refining practices which contribute to the deterioration of water purity. In speaking about a nearby ore-dressing plant in Shanxi Province, people in Yuxian County complained that it was ruining their water supply and destroying their reservoir.

> It discharges 70-80 tons of tailings a day and contaminates the mountain spring flowing into the reservoir. In the past few years, over two-thirds of the storage capacity has been filled with silt. Further, the 200,000 fish we stocked the reservoir with all died because of pollution.[61]

Another article summed up the interlocking soil and water problems. ". . . for the sake of temporary or local benefit, the people would not hesitate to build obstructions in rivers and streams, disrupt the water system, reclaim land from rivers to build farms, (and) indiscriminately discharge mining waste . . ."[62] The long-term effect of these practices is great, but the ability of the system to enforce control or invest necessary capital to correct the problems is in doubt. In asking what impedes the system's ability to effectively respond, one penetrates to the heart of the Chinese political/economic system, a topic to which we shall soon return.

INTERREGIONAL WATER TRANSFERS

On the average, China's northern and northwestern provinces receive 500 or less millimeters of rain annually; the Yangtze Basin receives a mean annual precipitation of 1,100 millimeters.[63] The water available per capita in the Yangtze Basin is more than four times greater than that available per capita to residents of the Yellow River Basin.[64] Each mu of cultivated land in the Yangtze Basin has more than nine times as much water available to it as does each mu of cultivated land in the Yellow River Basin.[65] Also, a much greater percentage of the Yellow River's runoff already is stored in large and medium-sized reservoirs (84%) than is the case in the Yangtze Basin, where only 9.1% of the runoff is captured.[66] In the ten years prior to 1983, flow on the Yellow River was cut eight times (in one case for nearly 20 days), affecting not only agriculture, but also transport and industry which rely upon the river.[67]

Admittedly imprecise ground water estimates suggest that north China's Huai, Yellow, and Hai River plain only has about 10% of China's estimated total primary reserves of ground water.[68] The water table is dropping throughout north China and more wells frequently do not produce more water. Particularly during the repeated droughts of the 1970s and early 1980s in the arid north, some factories have had to operate well below capacity for lack of water. Irrigated acreage is below planned levels in many areas and, in dry years, the area north of the Yellow River is estimated to be short 20 billion cubic meters of water annually.[69] Water is so scarce that one production unit with excess water sold its surplus to another "dry" unit for 30 times the price at which that water had been purchased from the water department.[70] And yet, despite these present shortages, the regime is counting on north and west China's economic expansion to help meet its ambitious economic objectives for the year 2000.

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[61] Beijing Review, No. 5 (1983), p. 26.
[62] FBIS, No. 91 (1982), p. Q2.
[63] Interview File No. 2.
[64] CWC, No. 1 (1982), p. 9. See also Dili Zhishi (Geographical Knowledge), No. 8 (1982), p. 3.
[65] CWC, No. 1 (1982), p. 9.
[66] CWC, No. 1 (1982), p. 4.
[67] Geographical Knowledge, No. 8 (1982), p. 3.
[68] CWC, No. 2 (1981), p. 52.

Some geologists argue that more ground water may be available in north China than estimates indicate. Some agriculturalists assert that new irrigation techniques would save a great deal of water. Both foreign and domestic experts agree that the waste of water is staggering. Nonetheless, in light of the basic meteorological facts of life in the North, and the requirements that future growth will place on already strained supplies, experts in the Ministry of Water Conservancy and Electric Power believe that the only long-term solution to the basic regional imbalance is to move water northward from the Yangtze Basin. Other ministries fear that a project of this scope would siphon away investment that they need.

The plan to divert Yangtze water north also is important in yet another respect. If additional water is not injected into the arid north and northwestern China system, intraregional conflict between upstream areas in the Yellow River Basin and those downstream in the urban and industrial areas of the North China Plain will increase. Areas in the West, such as Gansu Province, desperately need to pump more water from the Yellow River system; growing areas downstream (e.g., Tianjin which now is dependent to some degree on Yellow River water) want to minimize the upstream "take" so that they have as much left for themselves as possible. Even in 1958, the "contradiction" was clear to the Ministry of Water Conservancy, a growing upstream West, a growing downstream East, with the water take of each lessening the growth possibilities of the other. Today, the problems of China's West are serious. Areas of Gansu Province, for instance, are in a vicious cycle of drought, leading to over-cultivation, producing desertification. In one Gansu county, during the 1951–1955 period, the yearly average per capita water supply was 1,360 cubic meters. In the 1971–1975 period, that average volume had fallen to 238 cubic meters per capita.[71]

Given the importance of water to economic growth, combined with the desire to minimize intraregional conflict, the central authorities have been considering building a very large project (or projects) to move Yangtze water northward. Two possible routes have been under serious consideration, with a third (the "Western Line" along the Yalong River) an unlikely choice. The proposed "Central Route" would run from northwest Hubei Province (Danjiangkou Reservoir, and ultimately the Three Gorges if the high dam is built there) past Zhengzhou, across the Yellow River, and up to the vicinity of Beijing. As envisioned, this project would be entirely gravity flow, with no pumping required. Significant tunneling would be needed. The proposed "Eastern Route" would run from the Yangtze River near Yangzhou up through portions of the Grand Canal to Jining, in Shandong Province, and up to Tianjin when phase two is completed. In February 1983, the authorities settled on the Grand Canal route, though the matter probably is still being hotly debated.[72]

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[69] FBIS, No. 170 (1983), p. K4.
[70] CWC, No. 3 (1981), File 46.
[71] CWC, No. 4 (1981), p. 47.

The Yangtze River Valley Planning Office believes that the Central Route is preferable because its long-term operating costs would be lower and it fits in with its plans (hopes) to raise the height of the Danjiangkou Dam and to build the Three Gorges Project. That is, the Planning Office wants to raise the height of Danjiangkou Dam, thereby enlarging the reservoir's capacity in order to supply more water for movement northward and to help meet the initial irrigation objectives of the Danjiangkou project. Even more dramatically, the Yangtze River Valley Planning Office wants the "Central Line" to ultimately draw its water from the Three Gorges Project. Provinces along the proposed "Central Route," particularly Hubei and Henan, want this route selected so that they can boost their irrigated acreage.

However, the "Eastern Route" advocates have a case which even the Yangtze River Valley Planning Office (in 1982) candidly expected to prevail. Initial investment in the "Eastern Route" would be about one-third less than the "Central Line," it would be somewhat faster to build, it would move more water, it would occupy less agricultural land, the Ministry of Communications (responsible for shipping) prefers the "Eastern Line," and the provinces along this path, of course, want access to the water which would flow through their domains. On the minus side, however, the "Eastern Line" would require extensive pumping and would, therefore, consume a large quantity of electricity, producing permanently higher operating costs.[73] The estimated cost of the "Eastern Route" is around 4 billion yuan.[74] Considering the population displacement, the cost, technical complexities and the welter of divergent interests, this project will likely continue to be debated and take longer to construct than anyone currently expects.[75] Therefore, north China's thirst does not appear as though it soon will be quenched. In the short-term, the regime will be left trying to conserve water and divert available supplies from the Luan River and other streams on the North China Plain itself.

WATER CONSERVATION AND WATER UTILIZATION

In light of the above discussion concerning the North and Northwest's water shortage and the high cost of long-term solutions, it is unsurprising that China's leaders have focused upon the immediate need to conserve what water there is. Because waste is so substantial, this may be the one area in which comparatively rapid progress could be made.

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[72] FBIS, No. 170 (1983), p. K4; also, Development Forum, August-September 1983, p. 6.
[73] YRVPO, (Yangtze River Valley Planning Office) Interview No. 4, pp. 2–5.
[74] YRVPO, Interview No 4, p. 2.
[75] Interview, Ministry of WCEP, November 4, 1982, p. 8.

Water, whether it be for agricultural, industrial, or household use, is underpriced. Water, like grain, housing, and urban medical care, is sold at prices below the cost of production. China's entire economic system is a web of subsidies and multi-tiered prices which gives large sectors of the populace a perceived vested interest in perpetuating the inefficiencies of the present. Agricultural water is priced lowest, industrial water is in the middle, and household water is priced dearest. Underpricing water, like underpricing any commodity, encourages utilization which would not occur if the price were higher. One report from the Ministry of Water Conservancy and Electric Power asserts that Chinese industry reuses only 10% of its water while the comparable figure for industries in the developed countries is 70%.[76]

Although Chinese water pricing systems are of Byzantine complexity, one analysis by the Municipal Water Bureau of Beijing estimates that from 1966–1981, it received two li (one li equals 1/1,000th yuan) per cubic meter of water when the true cost of production was 21 li per cubic meter.[77] In turn, because water revenues have been low, maintenance of the pipe system, water treatment facilities, and reservoirs has been neglected. Major maintenance projects require separate capital construction appropriations which may, or may not, be forthcoming. Almost certainly such appropriations are not timely. Pipe leakage and resultant waste and contamination are serious problems.[78] Ironically, large-scale waste coexists with a severe water shortage in north China. Even with low water fees, many industrial units are in arrears paying their bills and collection has been difficult. Again showing how one policy affects another, enterprises which increasingly are being judged by their profitability vigorously oppose any increase in water rates to correct these problems. Until they can change the price of the goods which they sell, factories and other enterprises do not want higher prices which they are unable to pass along to someone else. To change water prices, like changing the price of any basic commodity, would set off a chain reaction throughout the economy. Policies designed to accelerate economic growth (by encouraging enterprise profitability) clash with the objectives and needs of a sound water price policy. Finally, many consumers still do not have metered service. It is not even known how much water they use.

Waste is seen not only in direct physical loss, it also is evident in foregone opportunities due to mismanagement. For instance, state reservoir fish production, particularly in large reservoirs, is comparatively low.[79] Fish production in one large-scale reservoir I visited was 2,721 jin (1 jin equals ½ kilogram) per square kilometer of lake surface area each year.[80] In another smaller county-run reservoir which I visited in southern Hubei Province, fish production was about 20,000 jin for each square kilometer per year.[81] The reasons for this wide disparity in productivity are many. Large reservoirs with hydro-electric plants lose a lot of fish through escape, there is a contradiction between irrigation and pisciculture, and reservoir security tends to be poor; illegal fishing, "bombing," "shooting," and "poisoning" are significant problems. However, another important reason for the low productivity in big reservoirs is that they tend to straddle a multitude of local jurisdictions. Each jurisdiction is reluctant to stock fish that another jurisdiction might take. When I suggested to interviewees that unified management of these large reservoirs might be a way to deal with this "free rider" problem, they thought this would be very difficult to achieve because of the inability to secure cooperation among competing local jurisdictions and difficulties in enforcement.

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[76] FBIS, No. 110 (1982), p. K12.
[77] CWC, No. 3 (1981), p. 46.
[78] CWC, No. 3 (1981), p. 45.
[79] CWC, No. 3 (1982).
[80] Field Trip Interview, (Danjiangkou), No. 3, p. 1.

III. The Political System

THE POLITICAL SYSTEM: FORMULATION AND IMPLEMENTATION OF POLICY AT THE MACRO LEVEL

The political/economic system not only is the "source" of some of China's water problems, it also is the mechanism which must fashion and implement "solutions" to them. What basic characteristics of the political/economic system affect whether or not timely and appropriate policies are developed, adopted, and effectively implemented? Is the political system the problem or the solution?

At least five fundamental attributes of the political system work against the expeditious development and effective implementation of longer-range water (and other) policies. First, the political process with respect to these sorts of distributive political issues is one of consensus building. The few at the top generally do not choose to unilaterally impose their solutions on large subordinate bureaucracies and territorial units. Instead, there is an elaborate process of consultation and negotiation among bureaucratic and territorial units and between administrative levels. This process can last for decades, literally. This is the case because those at the top frequently have insufficient information to decide unilaterally and they therefore request information and recommendations from below. The various bureaucracies respond with what Mao Zedong called "washouts" (deluges) of information, so multiplying the options that the top is immobilized by the range of choice. Even once a decision is made, compliance cannot be taken for granted. Therefore, China's leaders seek to have subordinates achieve a consensus which they then can approve. Of course, coercion is not absent from the entire process—eventually some people will lose their homes, some jurisdictions will be inundated, and some officials will lose their jobs. But, coercive resources are limited and therefore conserved. Consensus becomes the option of first resort.

This quest for consensus manifests itself in several ways. In budgetary policy, there is an expectation at all levels that each territorial and bureaucratic unit should receive a share of the budgetary pie roughly the same as it received previously. The absolute monetary amount may change with economic and budgetary circumstance, but there is a baseline expectation that relative shares of the budget should not change dramatically.[82] Each superior unit allocates budget shares to subordinate units on a predetermined and apparently stable formula. While some changes in budgetary priorities have occurred (witness the important shift in investment toward light industry and away from heavy industry), these are exceptions to the rule. Moreover, such decisions require the expenditure of enormous political capital and they tend to be short-term departures that gravitate back toward the original division of resources. Concisely, there is an ethic of budgetary "live and let live" that makes it hard to change priorities. All the budgetary fighting occurs at the margin with the assumption being that most basic expenditure categories will remain in a rather stable relationship to one another. Assuming that this is an accurate reflection of how resources are divided, it suggests that any significant reorientation of the budget in favor of water conservancy will be most difficult to achieve, even *if* water problems assume more importance on the elite's agenda. In China, as in Japan, budgeting functions to minimize conflict and it is nonprogrammatic, all rhetoric about synoptic planning aside.[83]

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[81] Field Trip Interview, (Qing Shan), No. 11, p. 1

The Chinese system is a complex hierarchy of territorial units. Leaders of superordinate territorial units are reluctant to impose severe costs on subordinate levels. Consequently, in water policy, where the effect of *any* decision to take, divert, impound, or allocate water or its derivative products inevitably affects a multitude of territorial units, one finds policy and projects slowed down by the need to build a consensus among the affected units. In the case of large-scale projects such as the Three Gorges Project or Danjiangkou Reservoir, these consensus building efforts actually become protracted negotiations with detailed understandings as to who must take how many displaced persons, who gets how much water and electrical power, what the priorities among irrigation, flood control, and electric power generation are to be, and how net beneficiaries are to compensate net losers. Indeed, an economic/political alliance between affected individuals and their local leaders can develop in which the locals attempt to extract as much money from the central government as possible as the price for agreement.

> Particularly in requisitioning land and removing buildings or other objects from such land, people try to overcharge the state to a rather serious extent. In some localities people ask an exorbitant price for their land and set many additional demands. The situation is outright intolerable. More serious is that some leading cadres give secret support to people who ask an exorbitant price for their land.[84]

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[82] Interview, Ministry of Water Conservancy and Electric Power, November 4, 1982, p. 6; see also interview with State Planning Commission, Beijing.

[83] John Creighton Campbell, Contemporary Japanese Budget Politics (Berkeley: University of California Press, 1980), pp. 272–273.

[84] FBIS, No. 131 (1983), pp. R6–R7; see also, FBIS, No. 152 (August 5, 1983), pp. K8–K9.

I have suggested that China's present and long-range water problems require gigantic responses. By their very nature, though, projects of this scale will cross many territorial and functional boundaries, thereby requiring an extensive negotiation process. For instance, the proposed Three Gorges reservoir, if built to the 200 meter level, would partially inundate about 22 counties.[85] What is amazing, if one has an exaggerated sense of Beijing's capacity to impose a solution, is to hear water planners and project managers explain, with some exasperation, that projects have been stalled due to the opposition of this or that county, special district, or province. And, as the negotiation process drags on, costs in terms of displacements and investment rise, making it still more difficult to achieve consensus. Mao Zedong's impatience with the process was well-founded and that is why several of China's biggest water projects were launched as a result of the Chairman having end-run much of the bureaucracy. Mao, in the end, was a confrontational leader in a system that gravitates toward consensus.

What one finds in China, I believe, is a system in which every territorial unit, bureaucratic organization, and individual has very inadequate resources to accomplish assigned tasks. Consequently, it simply is not seen as "just" or "fair" to take resources away from already impoverished entities. You could call this the budgetary "iron rice bowl" ethic.

In the end, achieving a consensus can be facilitated through at least two noncoercive mechanisms: money (difficult to habitually use because of economic constraints) and crisis—the sudden recognition that a critical problem exists or is looming and that procrastination cannot persist. As Lester Ross has recently pointed out in his cogent analysis of the 1981 Yangtze flood, that disaster brought forestry and soil conservation work to the Center's attention in a way that mere bureaucratic entreaties could not. Disaster in China, as elsewhere, commands elite attention.

A second systematic attribute works against water planning. China's need for investment capital to fuel growth is endless. This money must be raised internally (from profitable enterprises or taxation) or from abroad. Those ministries and enterprises which generate rapid returns on investment are more attractive sites for further investment than are ministries and enterprises which generate fewer revenues and have comparatively slow "capital circulation" times. This, of course, does not reflect economic efficiency as much as it is an artifact of centrally fixed prices. The result has been that water resource investment appears not to have been among the most attractive investment alternatives available to central planners. It remains to be seen whether or not the 1982 merger of the Ministry of Water Conservancy with the big revenue producing Ministry of Electric Power will enhance the attractiveness of investment in this area.

Another aspect of the investment dilemma is that non-electric power water projects generally have low returns, require large capital expenditures, and take a long time to complete. These are just the type of projects which require an active central authority capable of extraction. Localities tend to put investment into projects which produce returns more rapidly. In the post-1978 period, however, central control over total investment monies has declined. Prior to 1979, state planned investment occupied about 80 percent of total capital construction investment. In 1980 this proportion dropped to 62.5 percent; in 1981 it declined further to 56.8 percent and by 1982 it was 49.8 percent.[86] Investment outside of the budget correspondingly swelled, not only making it harder for the Center to focus adequate resources on key projects but also making it more difficult for Beijing to assure that its projects would have adequate materials or skilled manpower even once they were launched.[87]

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[85] People's Yangtze River, No. 4 (1979), p. 11

Third, the planning process is flawed and both the planning and implementation structures are riven with division. Water planners in the Ministry of Water Conservancy and Electric Power, in organs such as the Yangtze River Valley Planning Office, frequently are viewed as spokesmen for flood control interests by other ministries and, indeed, by the electric power interest within the ministry itself. Although water planners claim to represent the general social interest, they are distrusted by the Ministry of Communications and electrical power interests, particularly those committed to thermal power. These other organizations tend to believe that their missions continually are subordinated to the priorities of the flood control people. This leads to protracted discussions between the Ministry of Water Conservancy and Electric Power and other agencies and territorial units about what priorities ought to be and, indeed, even what standards of comparison should be employed in establishing project priorities.

Each organization and unit has its own ideology, sense of mission, and priorities which are sacred to it. Each believes that its objectives truly embody the general welfare. Each organization is afraid that it will not be adequately consulted and that its interests will be ignored. In order to resolve these sorts of conflicts as they apply to specific projects, the Chinese leadership repeatedly has had to resort to creating ad hoc interministerial groups to forge compromises. Such organs were established to build Gezhouba Dam and to evaluate proposals for the diversion of Yangtze water northward.

Moreover, poor planning practices in the past, such as "simultaneous survey, design, and construction" (san bian), have resulted in projects having to be abandoned after the start of construction or having to be suspended for long periods in order to cope with unanticipated problems. This, in turn, has resulted in protracted construction times, cost overruns, and projects which, once finished, are not up to initial specifications. This was the case at both the Danjiangkou and Gezhouba dam projects.

The planning process is defective in several other respects. Capital still is not seen as just another commodity. Planners, therefore, are reluctant to calculate the "interest costs" of investment. The Ministry of Water Conservancy and Electric Power may be particularly reticent to calculate interest because the capital requirements of its projects are large and because construction times have tended to be extremely long. Gezhouba will have taken about twenty years to build when it is completed. The result of not attaching a price to capital, however, has been that it has been wasted. Moreover, water conservancy planners are construction-oriented engineers. There has been less concern with financial planning than design planning. The Ministry acknowledges that the dominance of engineers, and the absence of social science and management training, has been one major reason for this.[88] Simply put, few persons in the planning process have asked how the maximum financial return can be extracted from every project.

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[86] FBIS, No. 140 (1983), p. K17.

[87] FBIS, No. 140 (1983), pp. K3-K5.

The absence of an agreed-upon mode of cost-benefit analysis in the planning process also is a serious obstacle. Skewed domestic prices for such basic commodities as coal make balanced cost-benefit analysis difficult, even though planners at the Yangtze River Valley Planning Office say that they do an economic analysis of projects using international prices.[89] For instance, underpricing coal makes it difficult to judge the relative "cost" of thermal versus hydroelectrical power plants. Moreover, the Chinese I interviewed were very reluctant to even attempt to assess broader "social costs" such as coal emissions and mining accidents, as part of a comprehensive cost-benefit analysis process. In the absence of a widely accepted method of comparative analysis, bureaucratic wrangling is protracted, with each bureaucracy building partial arguments consistent with its preferred policy. And, central decision makers find it hard to choose from among all of the competing investment alternatives. With all this background noise of competing bureaucracies, central decision makers are forced to rely upon essentially political criteria for choice.

At both the planning and implementation stages, building material allocation is a difficulty. While less of a problem in key projects than ordinary undertakings, basic construction materials (wood, steel and concrete) have been allocated to projects on the basis that each increment of capital construction investment is allocated a fixed quantity of each of these materials. Obviously, because different projects may need quite different proportions of these materials, shortages and surpluses are endemic to the entire construction process. Because materials shortages can stop a project dead in the water, project managers habitually ask for more investment than they need and they hoard materials, thereby further aggravating the shortage of both capital and materials. In turn, these caches of materials become a resource that feeds corruption. As the Chinese explain it, "a few enterprises deliberately exaggerate estimate(s) of funds, demand excessive raw materials, and rope in and corrupt cadres who are responsible for contracting the construction of some projects."[90]

It is this dysfunctional drive to hoard investment capital and construction materials which has led the State Planning Commission to start to introduce "a system of public bidding and investment responsibility" for all large and medium construction projects.[91] The theory simply is, if construction companies must compete in a profit and loss environment, they will conserve capital and material resources in order to prevail in the bidding process. Predictably, many cadres in the construction industry are reluctant to relinquish the security of a system they have come to understand for the vagaries of a market place they cannot control and with which they have no experience. Moreover, these cadres resist reforming the investment system until they can be certain that the necessary building materials will be forthcoming.

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[88] CWC, No. 3 (1982), p. 26.

[89] YRVPO, Interview No. 6 (October 5, 1982), p. 1.

[90] FBIS, No. 162 (1983), p. K9.

> They are afraid that the terms of contract (bids) cannot be fulfilled. Some comrades said that without reforming the existing supply system of capital construction materials, it would be difficult to promote the systems of investment responsibility and inviting and submitting tenders. . . .[92]

In this area, like so many others, to reform one part of the system requires reform in other parts.

Tackling the water problems identified above will be inhibited by a fourth characteristic of the system—there is a web of subsidies and differential prices which creates constituencies which will resist any change of the status quo detrimental to their interests. The Chinese are just beginning to reveal the enormity of the subsidy system which they have created. Government subsidies to urban consumers (for foodstuffs, rents, welfare and medical costs, and cultural activities) for 1981 consumed almost one-fourth of that year's total state revenue.[93] Even more astonishing, total state subsidies rose from 14.3 percent of state revenue in 1978 to 42.7 percent in 1981.[94] The grain and cooking oil subsidy (28.8 billion yuan from 1979-81) is just the most well-known example—there are many others. In 1983, for instance, Vice-Premier Yao Yilin announced that in order to compensate for increases in cotton textile prices, "subsidies of 100 million *yuan* will be granted to China's poorest areas in an effort to balance the adverse effects scheduled increases for cotton textiles might produce on living standards."[95] As we saw above, the Chinese leadership is reluctant to make hard choices that will have the effect of generating economic losers. Rather than create unpredictable dislocations by relying on a market price mechanism, it has seemed safer, and more consistent with the interest of the powerful planning and pricing bureaucracies, to make adjustments through subsidy. Once a subsidy is extended, it becomes a "right" and breeds a constituency—this "right" is rarely withdrawn, even as the weight on the central treasury becomes increasingly burdensome.

And so it is with water—water is selling far below its cost of production, as we observed above. Consequently, existent water systems decay, water is wasted amidst a shortage in the North, and capital is not accumulated to meet future repair and expansion needs. Yet, to raise the price to industry and agriculture would set off a domino effect of price changes throughout the economy.

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[91] FBIS, No. 133 (1984), p. K15; also FBIS, No. 134 (1984), pp. K6-K9.
[92] FBIS, No. 134 (1984), p. K7.
[93] BR, No. 43 (1982), pp. 6-7.
[94] BR, No. 8 (1983), p. 17.
[95] FBIS, No. 13 (1983), p. K9.

Turning to electricity, the subsidy arrangements are complex. In Gansu Province, for instance, some particularly arid areas at high elevations use large quantities of electricity to drive their irrigation pumps. These areas purchase electricity at a highly subsidized price which can be as low as one-sixth the nonsubsidized selling price. At this lower price, electricity costs per mu constitute about 5% of the farmer's per mu output value.[96] If the price were raised to a nonsubsidized level, electricity costs per mu would constitute about 30% of the output value per mu. It is a critical matter for these areas what the price of electricity is and they, predictably, resist efforts to change it. Similarly, small hydroelectric plants have received political guarantees that the power grids will purchase their excess electricity at comparatively high prices, even when the grid does not need the power. The result has been that the grids (particularly in the South) have had to, upon occasion, curtail production at larger and more efficient generating plants so that they can purchase the output from the smaller, and less efficient, generators. These electrical revenues have provided localities which own and operate small hydroelectric facilities, areas such as Chong Yang County, Hubei Province, with very significant resources which they can control. These revenues provide localities with some capability to accomplish their own objectives and they will fight to keep control of these funds.

What are the implications of all this subsidization? First, it means that creating more economic efficiency is not simply a technical problem, it is a political minefield. To propose changing the subsidy patterns is to propose redistributing the benefits of society. Second, gradual change will be difficult to produce because to change the price of one commodity will reverberate throughout the economy. Price changes will produce both wage demands and budgetary demands.

The final attribute of the system which affects its ability to deal with long-range water problems is that in China, as everywhere else, the objectives of one policy frequently conflict with others. For instance, the drive for enterprise profitability makes managers resistant to costly pollution control requirements. Managers in China like utility rate increases about as much as their capitalist counterparts abroad. Good forestry policy, controlled land use, and maintenance of collective irrigation projects run headlong into the perceived self-interests of peasants whose entrepreneurial instincts recently have been aroused. The drive by planners to accumulate investment capital leads them to invest in undertakings with a comparatively high return. Most fundamentally, the regime's immediate need to rebuild its legitimacy through economic growth, and the rising material demands of a population that has sacrificed for the last 30 years, conflict with the long-term interest in sound ecological management. The data in the pages above, data provided by the present Chinese leadership, are evidence that Beijing recognizes the problems. Nonetheless, in China as elsewhere, the needs of the present tend to overwhelm those of the future.

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[96] CWC, No. 4 (1981), p. 49.

RECENT AGRICULTURAL PRICE POLICIES AND THEIR EFFECTS: THE CASE OF SHANDONG

By Terry Sicular[*]

INTRODUCTION

China's agriculture has recently undergone significant change. Two of the most notable changes have been in the pattern of cultivation and in rural incomes: crop cultivation has shifted away from grain into commercial crops, and rural incomes have risen substantially. These trends appear clearly in both national and provincial statistics. The recent experience of Shandong, China's third most populous and second most densely populated province,[1] can serve as an illustration.

Shandong, located on China's eastern coast, traditionally has had a fairly diversified agriculture. Relatively large proportions of its sown area have been planted in commercial crops, and its contribution to the total national production of cotton, peanuts and tobacco has been sizable. Since 1978 the cultivation of commercial crops in Shandong has expanded rapidly. Sown area in grain, meanwhile, has declined continuously. (See Table 1.) This reduction in grain cultivation reflects widespread substitution of cotton, peanuts, and tobacco for grain. The extent of substitution has, in fact, alarmed provincial officials, who fear that the "contradiction" between commercial crops and grain will cause grain production to fall below desired levels.

As Shandong's cultivation pattern has shifted from grain into commercial crops, rural incomes have risen rapidly. Between 1978 and 1981 per capita incomes distributed by rural collectives rose, on average, 23% a year. If income from noncollective sources is included, rural per capita incomes may have risen as rapidly as 50% a year.[2] (See Table 2.) Although some of these income gains were undoubtedly eroded by the concurrent inflation in the cost of living,[3] Shandong's rural residents nevertheless enjoyed rapid increases in their real income.

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[1] TJNJ 1983, p 106. The population density ranking excludes the municipalities of Shanghai, Beijing, and Tianjin.

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[2] Provincial household survey data, which include income from both collective and noncollective sources, show rural incomes in Shandong growing at an average annual rate of 50%. See Table 2.

[3] According to one source, between 1981 and 1982 about half the increase in collectively distributed income in Shandong was due to inflation. See JJNJ, 1983, pp. V–101.

TABLE 1.—SHANDONG PROVINCE SOWN AREA BY CROP

[In thousand hectares]

Year	Grains						Cotton	Peanuts	Tobacco	
	Total	Wheat	Corn	Potatoes	Soybeans [1]	Others [2]			Total	Flue-dried
1952-57 (average)	11,820	4,088	1,226	1,177	2,224	3,105	718	(3)	(3)	(3)
1978	8,817	(3)	(3)	(3)	(3)	(3)	623	651	(3)	84
1979	8,735	3,721	2,136	1,461	634	783	543	562	89	84
1980	8,475	3,668	2,143	1,275	695	694	737	624	75	71
1981	8,150	3,510	2,201	1,150	719	570	938	669	92	88
1982	7,685	3,343	2,167	1,081	605	489	1,339	624	113	107
Annual percent changes in sown area:										
1957 to 1978 (average annual)	−1.4	(3)	(3)	(3)	(3)	(3)	−1.0	(3)	(3)	(3)
1978 to 1979	−0.9	(3)	(3)	(3)	(3)	(3)	−12.8	−13.7	(3)	0.0
1979 to 1980	−3.0	−1.4	+0.3	−12.7	+9.6	−11.4	+35.7	+11.0	−15.7	−15.5
1980 to 1981	−3.8	−4.3	+2.7	−9.8	+3.5	−17.9	+27.3	+7.2	+22.7	+23.9
1981 to 1982	−5.7	−4.8	−1.5	−6.0	−15.9	−14.2	+42.8	−6.7	+23.3	+21.6

[1] Soybeans are counted as a grain in Chinese statistics.

[2] Total grain area minus the areas of wheat, corn, potatoes, and soybeans. Other grains include sorghum, millet, and minor grains.

[3] NA—data not available.

TABLE 2.—PER CAPITA RURAL INCOME DISTRIBUTED BY COLLECTIVES IN SHANDONG PROVINCE

[In yuan]

Year	National average	Provincial average	Lu Xibei four prefectures [1]	Dezhou prefecture	Liaocheng prefecture	Yantai prefecture	Provincial as a percent of National	Per capita rural income data given by household surveys [2]		
								National average	Provincial average	Provincial as a percent of National
1956	43.0	51.9	(3)	(3)	(3)	(3)	120.7	(3)	(3)	(3)
1957	40.5	34.5	(3)	(3)	(3)	(3)	85.2	(3)	(3)	(3)
1976	62.80	57.6	(3)	38.6	(3)	(3)	91.7	(3)	(3)	(3)
1977	64.98	58.6	(3)	(3)	(3)	(3)	90.2	(3)	(3)	(3)
1978	74.00	68.4	46.0	(3)	(3)	(3)	92.4	133.6	89.2	66.8
1979	83.40	81.5	50.9	50.1	54.8	156	97.7	(3)	(3)	(3)
1980	85.93	105.2	87.4	88.8	126.0	[4] 191	122.4	(3)	(3)	(3)
1981	101.32	126.29	120+	(3)	(3)	(3)	124.6	223.4	231.6	103.7
1982	(3)	186.30	(3)	(3)	(3)	(3)	(3)	270.1	304.0	112.6

[1] Dezhou, Liaocheng, Heze and Huimin Prefectures.

[2] The national figure is given by a survey of 22,775 households, and the provincial figure from a survey of 1,529 households in 26 Shandong counties. These data include income from collective as well as noncollective sources. They are not directly comparable to the other income data because the two series have different coverage.

[3] Not available.

[4] Highest Shandong prefectural average in 1980.

Since 1978 the Chinese government has carried out major reforms of agricultural policy in Shandong and throughout China. Following a decade of one-sided emphasis on grain cultivation and slow growth in agricultural production and incomes, these reforms were intended to enliven the rural economy, raise output, diversify the structure of production, and improve rural living standards. One important component of the reform program has been the revision of procurement prices, the prices the state pays for farm products. Procurement prices have been adjusted so as to alter relative prices among crops and raise the overall level of prices paid for agricultural products.

Changes in relative prices among crops usually induce shifts in cropping patterns. Overall increases in the agricultural price level both encourage production across the board and enhance rural incomes. In China recent procurement price adjustments have probably promoted across-the-board increases in production. They do not, however, explain well the change in its composition. The shift out of grain into commercial crops did not occur because procurement prices of commercial crops rose more than grain prices: relative procurement price changes have not significantly favored commercial crops. Moreover, although raising the procurement price level has certainly contributed to growth in rural incomes, it does not explain all of the recent income growth.

Procurement prices do not fully explain recent trends in cultivation and rural incomes because they are only one of several factors affecting the profitability of farming. It is profitability, not prices, that is the fundamental economic determinant of agricultural production and incomes. Changes in the relative profitabilities of producing different crops induces substitutions in cropping patterns, and increases in the overall profitability of farming raise rural incomes. Since procurement prices influence profitability, they therefore affect production and income trends. Other factors, however, are also influential. In recent years these other factors have included cost-reducing technological change, reforms in state-administered agricultural incentive programs, changes in commercial and production planning, and institutional reorganization within the farm sector.

By examining the several factors underlying recent changes in agricultural profitability, this paper attempts to isolate the forces behind recent trends in China's agricultural production and incomes. The first section of the paper examines procurement prices. It shows that procurement price adjustments have not raised the prices of commercial crops relative to grains, and so do not explain recent shifts in cultivation. The second section discusses other factors that better explain cultivation trends: technological change, new incentive policies, reformulation of planning, and institutional reforms within agriculture. The sources of growth in rural per capita incomes are analyzed in the third section.

The discussion and conclusions in this paper are, for the most part, based on evidence drawn from Shandong province. Since the aggregate nature of national statistics obscures underlying cause and effect, looking at a single province is instructive. In addition, certain information about planning and institutional reforms not available for the nation as a whole is available for Shandong. As mentioned above, recent trends in Shandong parallel those nationwide; this study therefore sheds considerable light on developments nationally. Since, however, commercial crop production in Shandong is relatively important, and since trends in cultivation and incomes there have been more pronounced than elsewhere, conclusions drawn with respect to Shandong should nevertheless be interpreted carefully.

AGRICULTURAL PRODUCT PRICES

Farmers in China face a multi-tiered price system. The prices received by farmers take one of four forms: quota procurement prices, above-quota procurement prices, negotiated procurement prices, and free market prices. Quota and above-quota procurement prices are set by the central government for major "first category" crops (grains, cotton, oil-bearing crops, and wood), and by ministries and provincial governments in close consultation with the central government for other important "second category" crops.[4] Quota and above-quota procurement prices in general apply to planned purchases of agricultural products by the state. Negotiated procurement prices also apply to state purchases, but only of third-category products which are not subject to quota planning, and to first and second category products after quota and above-quota delivery responsibilities have been fulfilled. In theory negotiated procurement prices and quantities are determined jointly by the producer and local procurement bureau. In practice the central government sets fairly specific guidelines for negotiated price levels, and occasionally even sets the prices.[5] Free market prices are more or less determined by the forces of supply and demand in rural and urban markets. The state at times may intervene directly or indirectly by purchases or sale of government stocks on the market to regulate market price levels. All agricultural products except cotton [6] are allowed to be traded on rural markets so long as delivery obligations to the state have been fulfilled.

Since 1978 Chinese farmers have seen substantial changes in prices. Among the most important changes have been those in state procurement prices.[7] State quota and above-quota procurement prices have been raised, and the relative procurement prices among crops have changed. These price changes have been more or less uniform throughout China. Quota procurement prices for major crops in Shandong appear in Table 3. Between 1977 and 1981 the soybean quota price was increased 123%, cotton 48%, peanuts and tobacco 27%, and wheat and corn 22%. During these four years the quota prices of major grains like corn and wheat were adjusted only once, while the cotton and soybean quota prices were each adjusted three times. The multiple adjustments for cotton and soybeans reflect the state's attempt to find the appropriate relative prices for these crops. Prior to 1977 cotton and soybean production had declined. Recent price adjustments were meant to encourage production of these crops without causing too much substitution away from major grains.

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[4] Agricultural products are divided into three categories for planning purposes. First category products are subject to unified procurement and sales planning (tonggou tongxiao) under the direction of the State Council. As of 1982, grains, cotton, oil-bearing crops, and wood fell into the first category. Second category products are subject to designated procurement planning (paigou) carried out by various ministries. Hemps, tobacco, tea, meats and other animal products, poultry and poultry products, silk cocoons, important aquatic products, oils used for industrial purposes, medicinal herbs, sugarcane and sugar beet, important spices, lacquer, bamboo, honey, and certain vegetables and fruits fall into the second category. All crops which are not in the first or second category fall into the third category. Third category products are generally minor, local products. They are not subject to procurement quotas, but are obtained under negotiated (yigou) contracts with producers. The products which fall into each category have to some extent changed over time. With the exception of wood, the first category has remained unchanged for more than twenty years. Wood was probably moved from the second to the first category in 1982. The dividing line between second and third category goods has been more flexible. For a discussion and enumeration of agricultural product categories, see Ge Quanlin and Zhang Xiangmao (1982), p. 45.

[5] See, for example, Xie Zuoquan (1982), pp. 117-120.

[6] Free trade of cotton and cotton handicrafts was illegal as of 1981. Regulations may have changed since then.

[7] Another relevant change has been the increased importance of negotiated procurement and free market prices. Unfortunately, little information is available on these prices or on the quantities traded at these prices.

The procurement price data show that the overall quota price level has indeed risen in recent years. All the prices in Table 3, which includes prices for most of Shandong's major crops, were increased after 1977. Whether or not this higher quota price level has enhanced farm profitability depends on whether the prices farmers receive have increased more than the prices they pay for inputs. State retail sales prices of chemical fertilizers, pesticides, machinery, and electricity have remained unchanged since 1978. Prices of certain other inputs such as diesel fuel have, however, increased. Moreover, between 1978 and 1981 the free market price of small agricultural implements rose 11.8%, baby animals for home raising 17.7%, and bamboo and wood 40.7%.[8] Despite these input price increases, the index of prices received by farmers has probably risen more rapidly than the index of prices farmers pay for inputs, especially if above-quota and free-market prices are included in the index of prices received.[9] Thus increases in the quota price level have raised profits and encouraged overall production.

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[8] TJNJ 1983, p. 462. These are national average free market price increases.

[9] Above-quota and free-market prices for agricultural products are discussed below. Official Chinese farm input price indexes are not used in this discussion because the official index of prices paid by farmers for industrial products is based on a small number of items and so is not representative. See Lardy (1983a), pp. 108–112.

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TABLE 3.—QUOTA PROCUREMENT PRICES IN SHANDONG PROVINCE

[Yuan per metric ton]

Year	Wheat price	Corn price	Soybeans			Cotton [1]			Peanuts (shelled) [2]			Tobacco (flue-dried)		
				Price ratios			Price ratios			Price ratios			Price ratios	
			Price	Soy/Wheat	Soy/Corn	Price	Cotton/Wheat	Cotton/Corn	Price	Peanut/Wheat	Peanut/Corn	Price	Tobacco/Wheat	Tobacco/Corn
1952	190.6	136.4	167.4	0.88	1.23	1,666.4	8.74	12.22	327	1.72	2.40	926.8	4.86	6.79
1957	199	147	183.2	0.92	1.25	1,616	8.12	10.99	387.2	1.95	2.63	985.4	4.95	6.70
1966	273	193.8	284	1.04	1.47	1,780	6.52	9.18	607.8	2.23	3.14	1,344.4	4.92	6.94
1977	273	191.6	310	1.14	1.62	2,070	7.58	10.80	760	2.78	3.97	(3)	(3)	(3)
1978	273	191.6	400	1.47	2.09	2,300	8.42	12.00	760	2.78	3.97	1,369.6	5.02	7.15
1979	334	234	460	1.38	1.97	2,765	8.28	11.82	965.8	2.89	4.13	1,369.6	4.10	5.85
1980	334	234	460	1.38	1.97	3,062	9.17	13.09	965.8	2.89	4.13	1,369.6	4.10	5.85
1981	334	234	[4] 690	2.07	2.95	3,062	9.17	13.09	965.8	2.89	4.13	1,740.8	5.21	7.44

[1] Cotton prices and price ratios in this table have not been adjusted to reflect the 1971 change in quality standards. The prices given here are for standard grade cotton as defined at the time they prevailed.

[2] No provincial price data are available for peanuts and tobacco, so these series are national average prices. By the 1970s regional price differences were reportedly small.

[3] Not available.

[4] In 1981 quota deliveries of soybeans began to receive the 50% price bonus formerly applied only to above-quota deliveries; in essence, the quota price was raised 50% and the above-quota price bonus was eliminated. The price given here includes the 50% price increase. See Chinese Agricultural Yearbook, 1982, p. 151.

Sources: Wheat, corn, soybeans and cotton from Zheng Guibin, "An Investigation into Relative Grain and Cotton Price Conditions in Shandong," in Economic Investigations (Jingji Diaocha), 1983, p. 99. Peanuts and tobacco from Agricultural Technical-Economics Handbook (Nongye Jishu Jingji Shouce), pp. 742-743, and Chinese Agricultural Yearbook (Zhongguo Nongye Nianjian), 1980, pp. 380-387.

Aside from increasing the price level, quota price adjustments in recent years have altered the relative prices among crops. Generally speaking, between 1977 and 1981 the quota prices of commercial crops rose relative to grain. For example, the quota price ratios of cotton, peanuts, and tobacco to corn and wheat rose. (See Table 3.) For peanuts and tobacco, these recent improvements in relative quota prices raised the price ratios well above their 1950s levels. The same cannot be said for cotton. Although data in Table 3 suggest that cotton's relative price was higher in the 1980s than in the 1950s, cotton prices for these decades cannot be directly compared. All the cotton prices in Table 3 apply to current standard grade cotton, and in 1972 the definition of standard grade cotton changed. As a result, the pre-1972 cotton prices in Table 3 refer to a different, lower quality of cotton than the post-1972 prices. Thus part of the apparent price improvement between 1966 and 1977 simply reflects the fact that post-1977 prices apply to a higher quality product. If the change in quality standards had not occurred, then the 1981 cotton quota price would have been 11% lower, or 2759 yuan.[10] With this correction, in 1981 the quota price of cotton relative to both corn and wheat was actually lower than it had been in 1952 and about the same as in 1957. From an historical perspective, then, even though cotton's relative quota price has risen in recent years, it has only just recovered its 1950s level.

Above-quota prices have, like quota prices, changed in recent years. In general, above-quota prices are some fixed percentage higher than quota prices, and they apply to deliveries in excess of the base procurement quotas and tax. From the Shandong farmer's point of view, above-quota price ratios have probably been more important than quota price ratios. First, above-quota prices are the marginal prices received by farmers; above-quota prices generally apply to any increase or decrease in crop deliveries to the state. Second, even if farmers make decisions on the basis of average rather than marginal prices, in recent years the average price received for crop deliveries in Shandong has been largely determined by the above-quota price. More than 56% of state grain procurement in Shandong was at above-quota prices between 1979 and 1981. Above-quota procurement of cotton rose from 37% of the total in 1979 to 76% in 1980 and 79% in 1981.[11]

Above-quota price bonuses are set as a fixed percentage of the quota price; therefore, above-quota prices rise when either quota prices increase or when the percentage bonus for above-quota deliveries is raised. In recent years both these factors have been at work. Quota price increases have already been discussed. Above-quota percentage bonuses have for the most part increased, but the extent of increase has varied among crops. In 1979 the above-quota price bonus for grains and oil-bearing crops was raised from 30% above the quota price to 50% above the quota price. This 50% above-quota price bonus continues to apply to all grains and oil-bearing crops except soybeans. In 1981 all soybean deliveries, both quota and above-quota, began to receive the 50% price bonus. (Soybeans' quota price was raised 50% and the above-quota incentive was eliminated.) Cotton, which previously had received no price incentive, began to receive a 30% above-quota price bonus in 1979. While cotton producers were still required to sell all their output to the state except for 1 to 1.5 kilograms per capita, starting in 1979 deliveries to the state in excess of average deliveries during the previous three years received this higher price. Tobacco received no price incentive either before or after 1979.[12]

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[10] Zheng Guibin (1983), p. 100.
[11] Zheng Guibin (1983), p. 101.

With these above-quota price bonuses, how did relative prices change between 1977 and 1981? At above-quota prices, cotton's position has improved relative to major grains. Adjusted for the 1971 change in cotton quality standards, the above-quota cotton:wheat price ratio rose from 5.25 in 1977 to 7.16 in 1981. The cotton:corn above-quota price ratio rose from 7.49 in 1977 to 10.22 in 1981. Cotton's above-quota price ratios, however, are lower than its quota price ratios because grains enjoy a larger above-quota bonus than cotton. Moreover, the relative price of above-quota cotton remains lower than it was in the 1950s. In 1977 and 1978 the relative price paid for above-quota cotton deliveries was depressed far below its 1950s level, and even since 1979 it has not recovered fully.[13]

As for other crops, the above-quota price of tobacco relative to grain has fallen since 1977. Since tobacco receives no price bonus, its relative above-quota price declined in 1979 when the bonuses for major grains were raised from 30% to 50%: between 1978 and 1981 the tobacco: corn ratio fell from 5.50 to 4.96, and the tobacco: wheat ratio from 3.96 to 3.48. Since oilseeds receive the same above-quota price bonus as grain, peanuts' above-quota price ratios relative to corn and wheat are identical to its quota price ratios. These ratios have improved slightly. (See Table 3.)

At above-quota prices, then, commercial crops have not fared exceptionally well. Relative to corn and wheat, cotton's above-quota price has improved, but even with this improvement its relative price is lower than it was in the 1950s. The relative above-quota price of tobacco has actually declined. Peanuts' relative above-quota price has increased only as much as its relative quota price, that is, hardly at all. Since farm decisions are to a large extent based on above-quota prices, it seems unlikely that these ambiguous trends in the commercial crop to grain above-quota price ratios account for the quite dramatic substitution of commercial crops for grain.

PRICES, PLANNING AND PRODUCTION

Recent relative procurement price trends have not strongly favored commercial crops. Yet in Shandong and elsewhere in China, area sown to these crops has expanded considerably. What explains these shifts in cultivation? The explanation is twofold: first, farmers are now eligible for "encouragement" sales (jiang shou) of grain and fertilizer in return for commercial crop deliveries but not grain deliveries to the state, and second, in recent years the costs of production have declined more rapidly for commercial crops than for grain. The use of encouragement sales and to some extent the decline in production costs for commercial crops both stem from a broader redirection of national agricultural policy away from one-sided emphasis on high-yield grains toward a more diversified agriculture. With this redirection, planning of commerce and agricultural production have been reformulated so as to promote the cultivation of commercial crops.

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[12] Zheng Guibin (1983), p. 101.

[13] Above-quota price bonuses did not exist in the 1950s, so here the comparison is between the single price ratio that applied to all deliveries in the 1950s and the above-quota price ratio in the 1970s and 1980s.

Encouragement sales are a form of planned commercial supply. In order to encourage delivery of farm products to the state, central and provincial governments tie sales of commodities in short supply to farm deliveries. Various forms of encouragement sales have been in use since the early 1960s when, in the aftermath of the Great Leap Forward, the state sold consumer and light manufactured items such as sugar, wash basins, galoshes, and flashlights to farmers in return for farm product deliveries. The items supplied through encouragement sales and the farm products to which they apply have varied considerably over time and among regions.

In Shandong encouragement sales of grain have recently begun to apply to both cotton and peanuts. Encouragement grain sales are an effective incentive to cotton and peanut producers for two reasons. First, earlier grain self-sufficiency policies prevented rural residents from purchasing grain, and so forced commercial crop producers to grow grain for their own consumption on land inappropriate for grain cultivation. As a result, commercial crop producing regions suffered both financially and nutritionally. Farmers therefore welcomed the opportunity to buy grain through encouragement sales.[14] Second, encouragement grain is sold at the subsidized state unified retail sales price, a low price which usually applies only to urban and not to rural consumers.

Encouragement grain sales for cotton and peanut deliveries were introduced in Shandong in 1980. For cotton-specialized farm units meeting certain basic requirements,[15] the state would sell 0.75 kilograms encouragement grain for each half-kilogram cotton delivered in excess of 5 kilograms per capita. If a farm unit delivered more than 10 kilograms cotton per capita, the state would guarantee grain rations of 190 kilograms and supply either 2 kilograms encouragement grain or 1 kilogram chemical fertilizer (the farm unit could choose) for each additional half-kilogram cotton delivered. This provincial arrangement was superseded by a 1981 national policy where each half-kilogram cotton delivered above quota received one kilogram encouragement grain.[16] For peanuts, starting in 1980 peanut-specialized farms that delivered more than 20 kilograms of shelled peanuts per capita to the state were guaranteed grain rations of 180 kilograms, and for each additional half-kilogram peanuts delivered they received one-kilogram encouragement grain.[17]

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[14] Actually, in Shandong measures were taken prior to the introduction of encouragement grain sales to improve grain supplies to commercial crop producers. The level of minimum guaranteed annual per capita grain ratios for cotton producers was raised to 165 kilograms in 1978 and to 180 kilograms in 1979. These minimum ration levels were met through state sales of grain to cotton-specialized farm units with grain rations below the minimum. Similar policies applied to peanut producers. Even at this level of grain rations farmers sometimes had insufficient grain. See Shandong Provincial Party Committee Investigation and Research Office (1981), p. 117, and Zheng Guibin (1983), p. 101.

[15] The basic requirements were that the basic farm unit sold at least 5 kilograms cotton per capita to the state and had grain rations of at least 182.5 kilograms.

[16] See Shandong Provincial Party Committee Investigation and Research Office (1981) and Zheng Guibin (1983).

Encouragement grain is sold to producers at the unified state retail sales price—a subsidized price substantially lower than grain procurement and free market prices. According to one source, the price of encouragement grain is 0.20 yuan per kilogram lower than prevailing market prices.[18] Thus delivery of one-kilogram above-quota cotton or peanuts leads to a 0.40 yuan savings on grain purchases. This saving effectively raises the price received per ton peanuts or cotton by 400 yuan. The effective above-quota procurement price of peanuts is thereby raised 28% and cotton 10%. The high level of encouragement grain sales in Shandong attests to the popularity of this program. In 1980 encouragement grain sales amounted to 1.48 million tons.[19] The province's encouragement grain obligations were so high, in fact, that it was unable to meet them and was forced to offer cash and chemical fertilizer in place of grain.[20]

In addition to grain, farm deliveries of commercial crops receive encouragement sales of chemical fertilizers. In 1979 the national government implemented a policy of 40 kilograms chemical fertilizer encouragement sales for each 50 kilograms sawtooth-ginned cotton deliveries (42 kilograms chemical fertilizer for each 50 kilograms roller-ginner cotton). As of 1981 peanuts received 22.5 to 27.5 kilograms chemical fertilizer per 50 kilograms delivered. Flue-dried tobacco received 10 kilograms chemical fertilizer for each 50 kilograms delivered, with additional fertilizer for above-plan deliveries.[21] Like encouragment grain, the encouragement chemical fertilizer sales program was popular. Encouragement chemical fertilizer sales to cotton farmers in 1981 totaled 650,000 tons,[22] or about 69 kilograms per hectare cotton sown area.

The existence of these encouragement sales programs for cotton, peanuts, and tobacco puts grain at a disadvantage. Grains receive no encouragement grain sales. Thus, unlike cotton and peanut farmers, grain farmers are not eligible for grain sold at the subsidized price. The effective price they pay for grain is the higher above-quota procurement price. Although grain farmers are probably allotted chemical fertilizers on the basis of grain sown area, they do not receive additional access to chemical fertilizers based on their deliveries to the state. In recent years, therefore, state commercial planning has enhanced the status of commercial crops relative to grain.

The second factor explaining the substitution of commercial crops for grain is the faster decline in production costs for some commercial crops. Cost data from a Shandong survey of 43 production teams in 15 counties in cotton areas and 30 teams in 10 counties in grain areas are available for cotton, wheat, corn and soybeans. According to this survey, in 1980/81 average costs per ton of cotton produced were 28% lower than in 1978/79. Over the same period wheat's unit costs had risen 10%, corn's had remained constant, and soybeans' had risen 6%.[23] The decline in cotton's unit costs reflects substantial increases in yields per hectare between 1978 and 1981: for the surveyed teams, 1980/81 yields were 89% higher than in 1978/79. (For the province, 1980/81 yields were more than 150% higher than in 1978/79.) Costs per hectare also rose, but by less than half as much, 42%. For wheat and soybeans the survey shows practically no change in yields, and for corn a 14% increase. The costs per hectare of all three grains rose about 10%,[24] so their costs per unit output remained about constant or increased slightly. (See Table 4.) Although no survey cost data are available for tobacco and peanuts, their provincial average yields rose 35% and 5%, respectively, between 1979/80 and 1980/81.[25] These yield figures suggest that unit costs declined for tobacco but probably not for peanuts.

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[17] Zheng Shoulong (1980), p. 24.

[18] Zheng Guibin (1983), p. 102. This is a conservative estimate. Information on Shandong free market and state unified retail sales prices for wheat reported in 1981 and 1982 issues of Zhongguo Cai Mao Bao (China Finance and Trade Journal) give an average free market wheat price for 9 rural markets of 560 yuan per ton in 1980 and 709 yuan in 1981. The average state retail sales price for these same locations was 304 yuan in both years. Thus the retail sales price was 0.26 yuan per kilogram lower than free market prices in 1980 and 0.41 yuan lower in 1981. In both years the state retail sales price was 0.20 yuan lower than the above-quota procurement price.

[19] Zheng Guibin (1983), p. 102.

[20] RMRB, April 9, 1981, p. 4.

[21] Niu Ruofeng and Liu Tienfu (1983), pp. 759-63.

[22] Zheng Guibin (1983), p. 102.

TABLE 4.—SHANDONG COST SURVEY DATA

Item	Cotton	Wheat	Corn	Soybeans
Production costs per ton output (yuan per metric ton)				
1978	[illegible]	241.3	154.4	236.9
1979	1,579.4	232.6	151.4	217.2
1980	1,235.8	278.1	135.0	214.8
1981	[illegible]	241.8	170.6	261.8
Yields per hectare (metric tons)				
1978	[illegible]	[illegible]	[illegible]	1.328
1979	[illegible]	[illegible]	3.758	1.530
1980	[illegible]	[illegible]	4.520	1.562
1981	[illegible]	[illegible]	[illegible]	[illegible]
Costs per hectare (yuan)				
1978	1,065.4	771.4	599.7	341.7
1979	1,236.3	851.1	545.5	337.6
1980	1,541.9	854.6	655.0	359.3
1981	1,764.9	704.8	719.0	378.6

Note: Cost per hectare divided by yield does not equal production costs per ton output. The reason for this discrepancy is not stated. Costs per hectare may include some indirect expenditures not counted in production costs per unit output.

Source: Zheng Guibin (1983), pp. 97-98.

The relatively rapid yield increases and unit cost reductions for cotton and tobacco have enhanced their profitability.[26] Unit cost reductions can be attributed to three factors: variations in the nature of responsibility system reforms applied to different crops, uneven technical change among crops, and increased specialization according to comparative advantage. Since information on these three factors is available primarily for cotton, the discussion below focuses on that crop.

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[23] Two year averages are used to try to average out the effects of weather on costs. These averages are unweighted.

[24] See Zheng Guibin (1983), pp. 97-98. Provincial yield data for grains is available only for 1979-81. Over these three years, wheat yields declined slightly, and corn and soybean yields rose less than 10%. See Table A.2 in the Appendix. No provincial cost data are available.

[25] This tobacco yield increase is for flue-dried tobacco. See Table A.2 in the Appendix.

[26] The same, however, cannot be said for soybeans and peanuts.

By the end of 1980 more than 95% of production teams in Shandong had implemented some form of responsibility system reform. The responsibility system is often given credit for China's recent agricultural successes. Yet even if implementation of the responsibility system accounts for across-the-board cost reductions and yield increases, how can it explain the faster improvement for commercial crops than for grain? The differential impact of the responsibility system reforms among crops has as yet received little attention from either Chinese or Western scholars. This paper cannot examine the question in depth, but will set out a few hypotheses.

One reason why the responsibility system has affected crop costs unevenly is that different forms of the system are applied to different crops. The responsibility system can take several forms. At one end of the spectrum is the "performance target" system (dinge jichou) in which the collective maintains its original organization, but assigns work-points to its members on the basis of tasks performed rather than on the earlier basis of days worked. For example, ploughing x hectares of land is worth y work-points, or weeding x hectares of cotton is worth z work-points. At the end of the year, team net income is distributed among team members based on their year-end work-point tally. At the other end of the spectrum are worker, group and household contracting systems (lian chan jichou or bao chandao lao, zu, hu). Under contracting systems an individual, group, or household is given responsibility for cultivating specified crops on a fixed area of land with a fixed amount of certain production inputs supplied by the team. Target levels of output and costs are specified for the land and fixed amounts of material inputs are supplied by the team. The individual, group, or household receives an agreed upon remuneration if the targets are met. If the targets are surpassed, some sort of bonus is awarded (usually part of the above-target output). If the targets are not met, the individual, group, or household's remuneration is reduced.

In Shandong's cotton-growing areas performance target systems have been less widespread and contracting systems (especially to individuals and groups) more widespread than elsewhere in the province. In 1980, 18% of cotton-growing teams had implemented performance target systems as compared to 47% for the province as a whole. Contracting systems, on the other hand, had been adopted by 80% of cotton-growing teams and less than 50% province-wide. In Liaocheng prefecture, which specializes in cotton cultivation, more than 90% of production teams used the contracting system.[27] Unfortunately, no information on the form of responsibility system reforms is available for other commercial crops.

Different forms of the responsibility system undoubtedly have different effects on costs and yields. In general, one would expect contracting systems to have better results than performance target arrangements because more responsibility for the outcome is assigned to the individual or group. Remuneration is therefore linked even more strongly to effort, and incentives are enhanced. Since cotton is more frequently cultivated under contracting systems than other crops, responsibility system reforms may explain its more rapid cost and yield improvements. Yet, this analysis raises a more fundamental question: why have cotton and grain-cultivating teams adopted different forms of the responsibility system? Casual observation suggests that grain cultivation enjoys greater economies of scale than cotton: it requires less detailed handwork and is better suited to mechanization. For this reason, grain production may continue to be managed on a larger scale by collectives rather than having grain fields divided up into smaller plots for cultivation by individuals and groups. The relative predominance of performance contract systems for grain may also be related to regional differences in political relations or to the traditional gender division of labor among crops (women cultivate cotton, men grain).

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[27] See Shandong Provincial Party Committee Investigation and Research Office (1981), p. 117-118, and Ministry of Agriculture Bureau of Commune Management (1981), p. VIII-14.

Technical change, like responsibility system reforms, has also occurred unevenly among crops in recent years. The most notable advance has been the development and diffusion of Lumian No. 1, a new cotton variety well-suited to Shandong's agricultural environment. Lumian No. 1 is a resistant, adaptable, early ripening, and high-yield cotton variety. Its early ripening characteristic offsets a common problem in Shandong where, due to the combination of the long growing season and late ripening of previous cotton varieties with Shandong's climate and latitude, cotton bolls dropped off the plants before fully ripening.[28] Lumian No. 1 is reported to give yields 20-30% higher than existing varieties. Moreover, it yields higher quality cotton.[29]

Diffusion of Lumian No. 1 began in 1977. As of 1979, more than 80,000 hectares or about 15% of Shandong's cotton sown area were planted in this variety. By 1980 it was planted on 578,667 hectares or 79% of Shandong's total cotton sown area.[30] If the claims that it yields 20-30% more cotton are true, then the diffusion of this new variety is responsible for roughly 10% of the province's increase in cotton yields between 1978 and 1980/81.[31] Other reported innovations in cotton land preparation and cultivation methods probably also contributed to recent cotton yield increases.[32] Absence of similar glowing reports about new corn and wheat varieties or grain cultivation techniques suggests that the rate of technical change for grains was slower. Uneven technical change, by increasing the relative profitability of certain commercial crops, could therefore partly explain substitution out of grain into cotton.

Perhaps the major factor explaining the relatively rapid decline in commercial crop production costs is increased specialization according to comparative advantage.[33] Shandong's climate and soil are suitable to a diversified agriculture, and historically different regions within the province specialized in cotton, peanuts, and tobacco. Cotton cultivation was concentrated in Shandong's North and Northwest plains, particularly in the Northwest's Qingping, Xiajin, and Linqing belt, the North's Bin County and Putai belt, and in the Eastern Gaomih environs. In the early 1950s cotton occupied 20-30% of cultivated land in these areas. Cotton yields in these areas were about 263 kilograms per hectare, more than 30% higher than the provincial average. Peanuts were planted primarily in the East on Shandong's peninsula as well as in the South-central hilly region. In many peanut-growing areas peanuts occupied 10-15% of the land. Tobacco, introduced to China in 1915 and first cultivated in Shandong, was concentrated in the North-central area with Yidu City at its center.[34] (See Figures 1-3.)

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[28] Zhong Yi (1981), p. VII-15, 16

[29] Zhong Yi (1981), p. VII-15, and Shandong Province Agriculture Department (1981), p. IV-10

[30] Shandong Provincial Party Committee Investigation and Research Office (1981), p. 118.

[31] Provincial cotton yields rose from 0.246 tons/ha in 1978 to 0.72-0.73 in 1980/81, an increase of about 0.48 tons/ha or 190%. See Table A.2 in the Appendix

[32] See, for example, Zhong Yi (1981), pp. VII-15, 16

[33] For a thorough discussion of specialization and comparative advantage in Chinese agriculture, see Lardy (1983a)

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[34] Sun Jingzhi (1957), pp. 126-129.

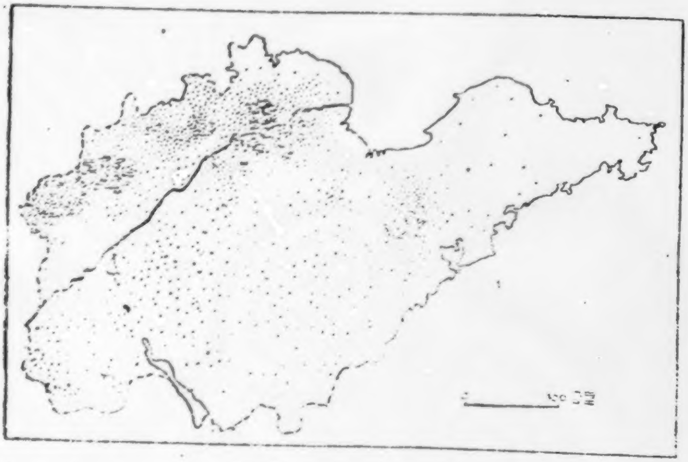

Figure 1. 1950s Regional Distribution of Cotton Production in Shandong. (Each dot represents 50 tons ginned cotton output. From Sun Jingzhi (1957), p. 128.)

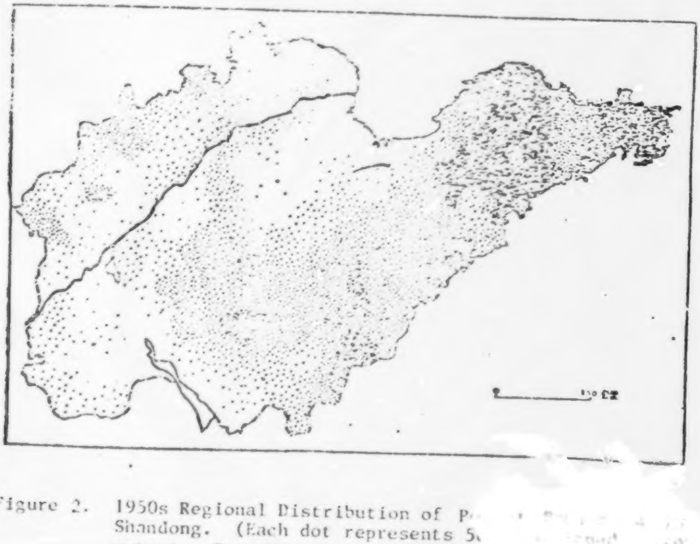

Figure 2. 1950s Regional Distribution of P[illegible] Shandong. (Each dot represents 5[illegible] output. From Sun Jingzhi (1957), [illegible]

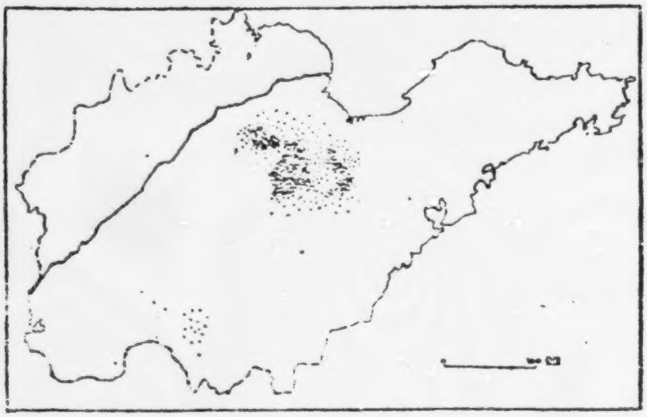

Figure 3. 1950s Regional Distribution of Tobacco Production in Shandong. (Each dot represents 100 tons output. From Sun Jingzhi (1957), p. 129.)

During the late 1960s and early to mid-1970s, provincial production planning emphasized food grain self-sufficiency and the production of high-yield grains (wheat and corn in Shandong) to the detriment of commercial crops. As a result, total commercial crop area fell and the degree of specialization declined. In Shandong's four northwest Luxibei prefectures[35] where one-quarter of cultivated area is saline-alkali soil poorly suited for grain but reasonably well-suited for cotton, cotton cultivated area declined from its 1956 level of 635,000 hectares to a low of about 253,000 hectares. In the Shandong Peninsula and the South-central regions, peanut cultivation declined from its historical level of about 600,000 hectares to a low of 200,000 hectares.[36]

In accordance with new central government policies, Shandong began in 1978 to emphasize comparative advantage in its production planning. While the provincial planned cotton sown area target increased from 533,000 hectares in 1979 to 620,000 hectares in 1980, and 640,000 hectares in 1981, the number of counties targeted for commercial cotton production was reduced from 82 in 1979 to 61 in 1980, and 57 in 1981. In 1980, 31 of the 61 targeted counties were to plant more than 10,000 hectares each, and 27 of these 31 were in the Luxibei region.[37] The targets for both total area and for consolidation were surpassed. Total cotton area exceeded the plan by 19% in 1980 and by 47% in 1981. Moreover, between 1979 and 1980 the number of counties planting more than 13,000 hectares in cotton rose from 14 to 28.[38] Peanut production has reportedly shown a similar consolidation, with 80% of its sown area occurring in counties planting more than 6,667 hectares in peanuts.[39]

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[35] Dezhou, Liaocheng, Heze, and Huimin prefectures.

[36] Bai Rubing (1982), p. 15.

[37] Shandong Provincial Party Committee Investigation and Research Office (1981), p. 116, and Shandong Province Agriculture Department (1981), pp. IV 9-11. The Luxibei prefectures have a total of 42 counties.

Increased specialization according to comparative advantage together with uneven technical change and implementation of contract responsibility system arrangements have contributed to lower unit costs of production for commercial crops. Since the unit costs of producing commercial crops have declined more rapidly than those of high-yield grains, commercial crop cultivation has become relatively more profitable, leading to substitution of commercial crops for grain. Encouragement sales policies have also favored commercial crops, thus causing further substitution. Together these factors have provided incentives for expansion in Shandong's cotton, peanut, and tobacco cultivation despite recent trends in relative procurement prices.

PRICES AND INCOMES

Since 1978 per capita incomes in rural Shandong have increased rapidly. Between 1978 and 1982 Shandong's rural per capita income rose from a level significantly below the national average to a level significantly higher than the national average. (See Table 2.) By 1981 Shandong's income per capita distributed by rural collectives ranked seventh highest among China's 28 provinces, municipalities, and autonomous regions, lower only than that in the wealthy suburban communes of Beijing, Tianjin, and Shanghai, the prosperous provinces of Guangdong and Jilin, and the heavily subsidized Tibet Autonomous Region.[40]

Procurement prices, although not the major determinant of recent changes in agricultural structure, have probably contributed significantly to recent income growth. Other factors have certainly also affected rural incomes. For example, responsibility system reforms, technical change and increased specialization have raised incomes by reducing unit costs and so increasing the profitability of production. The fact that incomes appear to have risen more rapidly in commercial crop-growing regions than elsewhere in the province suggests that the impact on incomes of these other factors has been important. Between 1978 and 1981, for example, average per capita income distributed by agricultural collectives in the four Luxibei cotton-growing counties rose 160%, while the provincial average rose 85%.[41] (See Table 2.)

Precise decomposition of recent income increases by source is impossible with available data. A rough estimate of the portion of the income increase explained by crop price increases as opposed to the portion explained by all other factors can be made by valuing 1981 output of major crops in Shandong at pre-reform and post-reform prices. (See Table A.3.) Such a calculation eliminates the effects of changes in technology, encouragement sales, quota levels, specialization, and other factors. When 1978 prices are applied to 1981 quantities, the gross value of output for major crops equals 8,362 million yuan. Using 1981 prices, the value of 1981 quantities is 12,241 million yuan, or 46% greater. Thus prices were responsible for roughly a 50% increase in Shandong's gross value of agricultural output between 1978 and 1981.

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[38] Zhong Yi (1981), p. VII-15.

[39] Zheng Shoulong (1980), p. 23.

[40] NYNJ 1982, p. 21.

[41] The 1978 income level for these four prefectures was 33% below the provincial average, but by 1981 their collectively distributed per capita incomes were only 5% less than the provincial average. Luxibei's increase in personal incomes was accomplished while paying off debts accumulated in the past and with continued saving by collectives and individuals. See Shandong Provincial Party Committee Investigation and Research Office (1981), pp. 24–25.

Between 1978 and 1981 rural per capita incomes in Shandong doubled. If one assumes that the percentage increase in per capita incomes due to price increases is roughly equal to the percentage increase in gross output value due to price increases, then price increases raised income 50% during these years. In other words, about half of the income increase over these four years was caused by increases in crop procurement prices.[42] Prices therefore explain a major share of recent income increases.

These rough calculations, however, leave half of Shandong's recent rural income increases unexplained. Factors other than procurement prices must account for the remainder. Once again, the other factors which have raised agricultural profitability—technological change, planning reforms, and institutional changes—have contributed to recent improvement in rural incomes. In addition, growth of nonagricultural sideline occupations in rural areas has certainly also played a role.

CONCLUSION

The above analysis of Shandong Province suggests that procurement price trends do not satisfactorily account for recent shifts in agricultural production and rural incomes in China. Although increases in the overall procurement price level have, by raising profitability, encouraged production, changes in relative procurement prices have not strongly favored commercial crops. Shifts in cultivation away from grain and toward commercial crops are better explained by new incentive policies, technological change, responsibility system reforms, and the reformulation of commercial and production planning. Similarly, procurement price adjustments do not fully explain growth in rural incomes. Roughly half of recent rural income growth in Shandong was caused by other factors.

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[42] Comparison of 1981 gross output value at 1978 and 1981 prices with the 1978 to 1981 income increase is not completely valid. First, in the above calculation costs and nondistributed collective income are not subtracted from gross output value. If the percentage of agricultural income distributed is assumed to be the same at either 1978 or 1981 prices, then costs still need to be subtracted, that is, the increase in net output value is the appropriate measure. The percentage increase in net output value would equal that in gross output value only if, input quantities held fixed, costs valued at 1981 prices were 46% higher than costs valued at 1978 prices. Although some input prices have increased, others have declined. It is unlikely that input prices have risen as much as 46%. Therefore the percentage difference in gross revenues valued at 1981 and 1978 prices probably understates the percentage difference in net revenues valued at the two sets of prices. Second, if 1978 prices actually prevailed in 1981, then output and input quantities would probably differ from those observed. Since 1978 relative prices are not the same as those in 1981, some substitution among crops would occur. This substitution would only take place if it increased net revenues above those yielded by 1981 observed quantities. As a result, net revenues calculated using observed 1981 quantities will be less than net revenues that would have been realized if 1978 prices actually prevailed in 1981. Thus the percentage difference between net revenues at 1981 and 1978 prices calculated using 1981 quantities overstates the true difference. If the percentage differences are identical for gross and net revenues, then 46% overstates the true increase in agricultural income due to price changes. Given these two sources of bias, it is not clear whether on balance the 46% estimate overstates or understates the real increase in income due to price changes.

Although procurement prices have an important function in China's economy, their function is at times overshadowed. For many years prior to the recent reform period prices were not an important policy instrument. The Chinese government kept procurement prices more or less unchanged and used other methods to guide agricultural production and incomes. In recent years the state has resurrected procurement price policy in its attempt to enliven the farm sector. Concurrently, however, it has reformulated various other elements of its agricultural policy. As this paper demonstrates, the effects of these other policy reforms plus technological change have been as important, if not more important, than the effects of procurement prices.

In the future the importance of agricultural procurement prices may diminish further. Recent articles in the Chinese press indicate that the state intends to reduce the role of administratively set prices in agriculture and to rely more extensively on market prices.[43] If these intentions are carried out, market prices will increasingly guide production decisions and influence rural incomes. Yet, even if market prices supplant procurement prices as the dominant prices, they are still but one of many factors affecting China's agricultural economy. New technologies, state commercial and production planning policies, nonprice incentive policies, and institutional change will also continue to influence agricultural trends.

APPENDIX

TABLE A.1.—SHANDONG PROVINCE AGRICULTURAL OUTPUT BY CROP

[In thousand metric tons]

Year	Grains						Cotton	Peanuts	Tobacco	
	Total	Wheat	Corn	Potatoes	Soybeans	Other[1]			Total	Flue-cured
1952-57 (average)	13,000	3,327	2,016	993	1,492	3,172	179.6	(2)	(2)	(2)
1978	22,880	(2)	(2)	(2)	(2)	(2)	154.1	1,048.0	(2)	(2)
1979	24,720	9,570	7,300	5,545	715	1,590	166.8	1,060.1	164.2	156.7
1980	23,840	7,660	8,255	5,555	740	1,590	537.3	1,404.3	163.5	157.0
1981	23,125	8,700	7,940	4,285	830	1,370	675.0	1,390.0	215.7	208.1
1982	23,750	8,240	8,480	4,945	735	1,350	960.0	1,400.0	352.3	337.0
1983	27,000	1,000	(2)	(2)	(2)	(2)	1,225.0	1,500.0	(2)	(2)

[1] Total grain output minus wheat, corn, potato, and soybean output. Other grains include sorghum, millet, and minor grains.
[2] Not available.

TABLE A.2.—SHANDONG PROVINCE CROP YIELDS

[Metric tons per hectare]

Year	Grains						Cotton	Peanuts	Tobacco	
	Total	Wheat	Corn	Potatoes	Soybeans	Other[1]			Total	Flue-cured
1952-57 (average)	1.100	0.814	1.644	2.543	0.671	1.027	0.250	(2)	(2)	(2)
1978	2.595	(2)	(2)	(2)	(2)	(2)	0.248	1.610	(2)	(2)

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[43] See, for example, Beijing Review 28 (2), Jan. 14, 1985, pp. 7-8.

TABLE A.2.—SHANDONG PROVINCE CROP YIELDS—Continued

[Metric tons per hectare]

Year	Grains						Cotton	Peanuts	Tobacco	
	Total	Wheat	Corn	Potatoes	Soy beans	Other [1]			Total	Flue dried
1979	2.828	2.573	3.420	3.795	1.125	2.031	0.308	1.883	1.838	1.875
1980	2.813	2.085	3.855	4.358	1.215	2.291	0.728	2.250	2.190	2.220
1981	2.835	2.483	3.608	3.728	1.155	2.404	0.720	2.078	2.348	2.378
1982	3.090	2.468	3.915	4.575	1.215	2.761	0.720	2.243	3.105	3.135

[1] Derived from "other grain" output and sown areas given in Tables 1 and A.1.

– Not available.

Note: Crop yields given in this table may occasionally differ from the quotient of output and sown area. This occurs when output, yield, and sown area for a given year are taken from different sources. The discrepancy generally arises due to rounding of reported data.

Table A.3

Gross Value of Shandong 1981 Major Crop Output at 1978 and 1981 Prices

Crop	1981 Production[a] (million tons)	Quota Procurement Prices[a] (yuan per ton) 1978	1981	1982 Quota Procurement[b] (million tons)	1981 Gross Value of Output[c] (million yuan) 1978 Prices	1981 Prices
Wheat	8.700	273	334	1.100	2903	4267
Corn	7.940	191.6	234		1949	2728
Soybeans	0.830	400	690		425	573
Cotton	0.675	2300	3062	0.132	1553	2566
Peanuts (shelled)	1.390	760	965.8	0.556	1247	1745
Tobacco (flue-dried)	0.208	1369.6	1740.8	-	283	362
Total Output Value					8,362	12,241

Ratio of Output Valued at 1981 Prices to Output Valued at 1978 Prices $\frac{\Sigma Q_{81}P_{81}}{\Sigma Q_{81}P_{78}} = 1.46$

a. Prices and quantities taken from tables in the text.

b. Quota procurement levels for grain and cotton are given by Zheng Guibin, *op. cit.*, p. 101. Tobacco has no above-quota incentive. The peanut procurement quota is assumed to be 40% of output.

c. All production except for quota quantities is valued at above-quota prices. The grain quota is assumed to be borne by wheat, corn, and soybeans in proportion to their percentages of the sum total of their outputs.

NOTES

Sources for data on Shandong sown areas, crop outputs, yields and rural incomes are given below.

SOWN AREAS

1952-57—Total grain, wheat, corn, potatoes, soybeans: Walker (1984), pp. 221-228. Cotton: 1957 cotton area given in Lardy (1983a), p. 58, all others derived from output and yield data.

1978—Total grain, cotton: derived from output and yields. Peanuts, flue-dried tobacco: JJNJ 1981, p. VI-106 states 1978 peanut area was 180,000 hectares less than 1981, and 1978 flue-dried tobacco area was 3,667 hectares less than 1981.

1979, 80—All sown areas from NYNJ 1981, pp. 22-38.

1981—All sown areas from NYNJ, 1982, pp. 34-43.

1982—All sown areas from NYNJ, 1983, pp. 37-47.

OUTPUT

1952-57—Total grain, wheat, potatoes, soybeans: Walker (1984), pp. 202-209. Corn: derived from area and yield data. Cotton: 1952-55 from DZRB (Jan. 19, 1957); 1956 from HQ No. 8, 1981, p. 116; 1957 derived from area and yield data.

1978—Total grain, cotton: Zheng Guibin (1983), p. 98. Peanuts: BKNJ, 1980, p. 87, states that 1979 peanut output was 0.121 million tons greater than 1978 output.

1979, 80—All data taken from NYNJ 1981, pp. 22-38.

1981—All data taken from NYNJ 1982, pp. 34-43.

1982—All data taken from NYNJ 1983, pp. 37-47. Most of this data is also available in TJNJ 1983, pp. 166-168, 173-174.

1983—Total grain, cotton, peanuts: RMRB (Aug. 14, 1984), p. 3. Wheat: DZRB (June 27, 1983).

YIELDS

1952-57—Total grain, wheat, corn, potatoes, soybeans: Walker (1984), pp. 239-246. Cotton: 1952-56 from DZRB (Jan. 19, 1957), 1957 from Lardy (1983a), p. 58.

1978—Total grain, cotton: Zheng Guibin (1983), p. 98. Peanuts: derived from output and area data.

1979, 80—All data taken from NYNJ 1981, pp. 22-38.

1981—All data taken from NYNJ 1982, pp. 34-43.

1982—All data taken from NYNJ 1983, pp. 37-47.

INCOMES

National—1956, 1957, 1976-79: NYNJ 1980, p. 41. 1980: NYNJ 1981, p. 68. 1981: NYNJ 1982, p. 91. 1978, '81, '82 survey data: TJNJ 1983, p. 499.

Provincial—1956, 1976-80: JJGL No. 8, 1981, p. VIII-13. 1957: Lardy (1983a), pp. 176-177. 1981: NYNJ 1982, p. 91. 1982: JJNJ 1983, p. V-101. 1978, '81, '82 survey data: JJNJ 1983, p. V-101.

Luxibei Four Prefectures—1978: Lardy (1983a), pp. 175-177. 1979-80: JJGL No. 8, 1981, p. VIII-13. 1981: JJNJ 1982, p. VI-108.

Dezhou, Liaocheng and Yantai Prefectures: All income data from JJGL No. 8, 1981, pp. VIII-13, 14.

LIST OF ABBREVIATIONS

BKNJ—Zhongguo Baike Nianjian (China Encyclopaedic Yearbook).
DZRB—Dazhong Ribao (Masses Daily).
HQ—Hongqi (Red Flag).
JJGL—Jingji Guanli (Economic Management).
NYGZTX—Nongye Gongzuo Tongxun (Agricultural Work Bulletin).
NYNJ—Zhongguo Nongye Nianjian (China Agricultural Yearbook).
RMRB—Renmin Ribao (People's Daily).
TJNJ—Zhongguo Tongji Nianjian (China Statistical Yearbook).

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CHINESE FISHERIES

By Jaydee R. Hanson*

CONTENTS

		Page
I.	Summary	431
II.	Introduction	432
III.	Fisheries Resources and Catch	432
IV.	Fishing Fleet and Ports	439
V.	Processing, Distribution, Marketing	440
VI.	Environmental Problems	442
VII.	Fishery Trade	445
VIII.	International Agreements, Joint Ventures, Foreign Aid	448
IX.	Future Developments	451

I. SUMMARY

China's fish catch increased more than ten-fold between 1949 and 1984. Despite a resource base among the richest in the world, the fishing industry has been plagued by poor management and conflicts with the development goals of other industries. Overfishing in coastal and inland waters resulted in a decline in preferred food species and limits future production. Expansion of freshwater aquaculture accounts for most of the increase in fish production over the last decade.

Problems in marketing, distributing, and preserving fish continue to trouble the industry. Recent efforts to overcome these limitations have met with some success. Technologies to preserve and process fish better are most desired by the Chinese. They hope to obtain these technologies through joint ventures or commodity trade agreements.

China exports significant amounts of fishery products to Japan, Hong Kong, and Southeast Asia. Ten percent of its exports go to the US. In order to increase fisheries trade with the US and to develop a distant water fleet, China has negatiated a Governing International Fisheries Agreement (GIFA) with the US so that Chinese vessels might fish in US waters.

Despite its fishery development problems, China possesses a tremendous amount of fisheries skill. China's limited foreign aid program includes significant fisheries aid to Asian and African nations.

In the future, China can be expected to continue its efforts to expand aquaculture, develop limited distant water fishing ventures, greatly improve its preservation technologies, and provide more and higher quality fish products to both domestic and international markets.

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II. INTRODUCTION

Fisheries hold a place in China far beyond their economic role. By world standards, China's fisheries are impressive. China, the world's third largest producer of fishery products, has the most fishermen of any nation and is the world's largest producer of both seaweed and freshwater fish. Still, the total value of the industry (7.7 billion yuan in 1984) accounts for only about two percent of agricultural production in China.[1]

Grains and other staples represent most of the value of agriculture, but fish and its availability symbolizes abundance to most Chinese. The phrase "a land of rice and fish" describes both China's most productive lowlands and the hope for an earthly paradise. The word for fish in Chinese—"yu"—sounds like the word for "surplus". The presence of fish on the table or in art has become a visible sign of good times. A fish dish and the hope it represents is a must for most Chinese festive dinners. Like turkey at Thanksgiving, the feast wouldn't be the same without it.

III. FISHERIES RESOURCES AND CATCH

China's fisheries rank among the richest in the world. A great diversity of aquatic environments produce more than 1000 economically valuable plant and animal species, fifty of which provide most of the catch. An 18,000 kilometer (km) coastline stretches from the cool waters of Liaoning to the tropical seas of Guangxi and opens onto the Bohai, Yellow Sea, East China and South China Seas. The area of continental shelf fishing grounds less than 200 meters deep totals some 430,000 square nautical miles or roughly one quarter of the world's continental shelf fishing grounds. Along the coast, some 1.5 million hectares (ha) are suited for marine aquaculture.[2] Inland fisheries potential is great, too. Rivers, lakes, reservoirs and ponds cover 17 million ha, of which 25 percent could be used for aquaculture.

Fisheries catch and culture in 1983 totaled 5.457 million metric tons, placing China third to Japan and the USSR in world production. Marine production, including the dry weight of seaweeds, comprised 3.614 million tons or two-thirds of the total. Freshwater production contributed 1.843 million tons, or one-third of the total. Fishing yielded 64 percent of 1983 production, while aquaculture contributed 36 percent of the total.[3]

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[1] State Statistical Bureau, "Communique on Fulfilment of China's 1984 Economic and Social Development Plan", March 9, 1985.

[2] Zhu Deshan, "A brief introduction to the fisheries of China", FAO Fisheries Circular, No 726, 1980.

[3] See Table 1.

TABLE 1.—CHINA's AQUATIC PRODUCTION, 1949–83

[In thousand metric tons]

Year	Total	Marine fisheries				Freshwater fisheries		
		Subtotal [1]	Capture	Culture [2]	Seaweed [3]	Subtotal	Capture	Culture
1949	448							
1952	1,666	1,060	1,000	54	6	606	470	136
1957	3,116	1,938	1,815	123		1,178	614	564
1962	2,283	1,498	1,409	89		785	470	315
1965	2,984	2,014	1,910	104		970	457	513
1970	3,185	2,281	2,097	[4] 93	[4] 91	904	322	582
1971	3,496	2,560	2,331	91	138	936	316	620
1972	3,842	2,915	2,569	94	162	928	307	621
1973	3,931	2,911	2,691	82	138	1,020	361	659
1974	4,282	3,254	3,006	100	148	1,028	317	711
1975	4,412	3,347	3,068	115	164	1,065	312	753
1976	4,476	3,429	3,122	140	157	1,057	316	741
1977	4,695	3,619	3,195	193	231	1,076	308	768
1978	4,654	3,595	3,145	190	260	1,059	296	762
1979	4,305	3,190	2,772	167	250	1,116	301	814
1980	4,497	3,257	2,817	178	262	1,240	341	899
1981	4,605	3,231			228	1,374		
1982	5,155	3,593	3,098	267	228	1,562	362	1,200
1983	5,457	3,614	3,074	[4] 291	[4] 249	1,843	410	1,433

[1] Including dry weight of seaweeds.
[2] Figures for 1957, 1962, and 1965 include dry weight of seaweed.
[3] Seaweeds by dry weight.
[4] Author's estimate.

Sources: 1949-1965 and 1979 from *Zhongguo Nongye Nianjian*, 1980 in JPRS 80270, p. 206; 1952 seaweed production from *Zhongguo Nongye Dili Zonglun*, October 1980 in JPRS 78034 p. 187; 1970-1978 data from Zhu Deshan, "A Brief Introduction to the Fisheries of China," FAO Fisheries Circular No. 726, Feb. 1980; 1980-1982 data from FAO Yearbook of Fisheries Statistics, 1982; 1980 aquaculture data from Beijing Review, May 23, 1983; 1982 aquaculture data from C.J. Grant, et al., Fisheries in China, Australia-China Agricultural Exchange Programme, 1983; 1983 data from Chinese Fisheries Bureau, China's Fisheries (brochure) 1984.

TABLE 2.—MARINE FISH: YIELD OF MAJOR SPECIES, 1970–82

[In thousand metric tons]

Year	Hairtail	Large yellow croaker	Small yellow croaker	Mackerel	Pacific herring	Spanish mackerel	Chinese herring	File fish	Squids	Prawn	Shrimps	Jelly fish
1970	391.8	158.7	30.4	173.1	2.2	26.6	9.0		56.6	14.4	92.7	50.6
1971	429.6	143.8	34.0	36.6	30.9		12.4		73.3	13.2	77.1	16.1
1972	495.5	149.3	20.5	78.3	181.9	32.8	11.1		47.8	11.9	90.1	16.6
1973	564.5	137.9	31.9	93.1	120.5	36.5				32.6		58.2
1974	577.3	197.2		113.5	71.7	39.2				39.9		22.1
1975	483.8	140.0		84.5	57.6	33.5				29.1		17.1
1976	433.6	123.7		79.0	55.3	28.2			35.8	10.0	115.1	5.1
1977	392.5	91.2		134.9	17.5	38.2		230.1	40.4	25.1	171.9	11.7
1978	387.2	93.8		282.3	21.8	34.5		310.4	62.0	38.4	195.5	3.6
1979	437.2	82.9	35.7	205.4	38.9	42.4	14.7	105.4	90.1	54.0	98.1	12.9
1980	473.3	86.4	35.9	83.8	37.9	51.5	14.8	161.4	79.5	33.0	133.1	9.0
1981	499.0	79.8	35.2	73.5	35.1	48.1	14.7	208.6	28.1	29.0	155.0	18.0
1982	493.4	58.6	30.6	107.0	23.5	60.9	12.5	265.9	49.9	33.3	159.9	20.6

Source: 1971-1978, Zhu Peshan, 1980; 1979-1982, FAO Yearbook of Fisheries Statistics, 1982.

TABLE 3.—CATCH BY PROVINCE, 1978 AND 1983

[Figures given in metric tons]

Province	1978	1983
Beijing	1,786	(1)
Tianjin	45,021	41,100

TABLE 3.—CATCH BY PROVINCE, 1978 AND 1983—Continued

[Figures given in metric tons]

Province	1978	1983
Hebei	136,862	91,600
Shangxi	719	3,306
Nei Monggol	1,997	([1])
Liaoning	468,915	512,000
Jilin	11,431	([1])
Heilongjiang	31,772	43,000
Shanghai	213,993	184,000
Jiangsu	367,617	491,000
Zhejiang	875,187	([1])
Anhui	53,186	124,500
Fujian	447,593	435,082
Jiangxi	59,252	([1])
Shangdong	740,283	675,000
Henan	24,693	([1])
Hubei	109,989	209,800
Hunan	118,666	225,000
Guangdong	721,738	928,000
Guangxi	117,137	([1])
Sichuan	47,433	83,000
Guizhou	3,714	([1])
Yunnan	11,222	19,300
Xizang		([1])
Shaanxi	2,218	([1])
Gansu	197	([1])
Qinghai	4,400	([1])
Ningxia	285	1,060
Xinjiang	6,176	([1])
National total	4,653,482	5,457,000

[1] No data available to author

Source: 1978 catch data from "Zhongguo Nongye Nianjian 1980" in JPRS 80270. 1983 data from various provincial newspapers.

MARINE FISHERIES

China's marine fisheries catch gradually increased in the early 1980s after a sharp decline in 1979. While the current catches are at or near peak levels, the species composition of the catch has changed markedly over the past two decades. Overfishing of highly valued species like flounders, bastard halibut, cod, and croakers has led to a drastic decline in their catch over the last 15 years. Yellow croaker catches declined from a high of 190,000 tons in the 1960s to 60,000 in 1982. Small yellow croaker declined from 160,000 tons to 30,000 in the same period.[4]

Less preferred but more abundant species replaced croakers and other preferred species. Hairtails and filefish in 1982 comprised 22 percent of the total catch up from 18 percent in 1977. Stocks of hairtails are now being overfished, too. Hairtail catches dropped nearly 100,000 tons in a decade. Continued overfishing of inshore spawning grounds by unauthorized commune vessels is expected to cause hairtail and cuttlefish catches to fall still more.[5]

Heavy fishing in shallow waters yields great quantities of clams, crabs, and shrimp. Together these three groups provide more than

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[4] Renmin Ribao (RMRB) October 5, 1983 in "Chinese Agriculture" (CAG) No. 84-05

[5] "Zhejiang Ribao," October 16, 1983 in CAG 84-05

20 percent of marine catch. Haiyang Yuye, a leading Chinese fishery journal, noted in 1982 that clam stocks in the Pohai had collapsed due to overfishing. The Pohai fishery once produced 40,000 tons of clams annually.[6]

Marine fishing, as opposed to mariculture, still provides some ninety percent of the total marine fisheries production. It is unlikely that the same grounds can supply much more fish than the Chinese are now catching annually. J.A. Gulland, a fisheries resources expert, estimates that grounds like those of China's continental shelf can yield about 25 kilograms per hectare annually.[7] This would suggest that an optimal yield for China's marine waters would be about 3.7 million tons. China's catch already approaches that figure, but it comes mostly from nearshore areas less than 100 meters deep and includes few areas between 100 and 200 meters deep. Those deeper grounds will have to be fished if the Chinese are to expand their marine capture fishery. These areas are now being fished by vessels from Japan, Korea, Taiwan, and Hong Kong.

MARINE FISHING GROUNDS AND METHODS[8]

South China Sea and Beibu Wan

Trawling takes a great variety of species with each trawl bringing in up to forty different species. Among the most desired are croakers, flatfishes, and shrimps. Species taken by purse seining include round scad, mackerel, round herrings, sardines, and a few tuna.

East China Sea

Centered around Zhoushan Islands, this fishery has traditionally been China's richest. Hairtails, croakers, cuttlefish, squid, flatfish, and more recently filefish, support a significant, but declining trawl fishery. Drift gill netting takes Spanish mackerel, Chinese herring, and mackerel. Mackerel, round scad, sardines, and Pacific herring are taken by purse seines. Set nets off the coast harvest jellyfish.

Yellow Sea

Trawling for demersal species like croaker and for shrimp accounts for much of the historic catch of these grounds. In the past, the heaviest concentrations of small yellow croakers were in the middle and southern parts of the Yellow Sea. Shrimp and prawns abound in the shallow Yellow Sea waters. Kelp, now transplanted throughout China's seas, was first discovered in China in these waters.

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[6] "Haiyang Yuye" (Marine Fisheries) January 25, 1982, pp 16-19

[7] J.A. Gulland, the fish resources of the ocean. West Byfleet, England, Fishing News (for the UN FAO), 1971, p. 142

[8] For a more complete discussion, see Ernestine Wang, "A General Survey of China's Marine Fishing Grounds and Fishery Resources," U.S. National Marine Fisheries Service, Office of International Fisheries, unpublished report, 32p (1983)

Pohai

The Pohai's shallow waters (averaging only 20 meters), nourished by the silt of the Yellow River, support a rich shrimp and prawn fishery. Both trawls and set net harvest these crustaceans. Other shellfish such as oysters, razor clams, blood clams, ordinary clams, mussels, scallops, and abalone, while found in all of China's seas, do especially well here.

MARICULTURE

China's shallow seas provide many areas suitable for mariculture. By 1982, 130,000 ha of coastal waters yielded 495,000 tons of cultured products. Seaweed cultivation accounted for 228,000 tons by dryweight.[9] Culture of finfish, crustaceans, and mollusks yielded 267,000 tons, or only 8 percent of the year's marine total.

Most of Chinese mariculture still relies on collection of fry, spores, spat or gravid females from the wild. This is as if feed calves were obtained through round-ups of wild cattle rather than breeding. Species for which breeding or cultivation techniques are most developed produce the bulk of China's mariculture harvest. Oyster culture began in China nearly 600 years ago. Today, annual oyster meat production is about 30,000 tons (about 10 percent of marine fish culture). Razor clam, raised in plowed coastal beds, yields 40,000 tons annually.

Mussel production increased markedly after spore collection techniques developed in the early 1970s came into use. In recent years, annual mussel harvests average about 80,000 tons, more than any other cultured animal. Ark shell, hard clam, and clam each contribute about ten percent to marine culture.

China has recently introduced many new species for mariculture. Some of these, including jellyfish and sea cucumbers, now being cultured experimentally are intended for both Chinese and foreign consumption. Other new developments may have broad export appeal. Abalone and four scallop species are the focus of intensive research at several locations. The Pacific oyster, introduced from Japan in 1982, will likely join native oysters already being cultivated on a large scale.[10]

The Chinese hope to develop a significant export industry based on prawn (Penaeid) culture. This desire was perhaps best expressed by Yang Haiqun in the October 18, 1978, People's Daily.

> The cultured prawn, crab, clam, oyster, scallop, seaweed and pearl are all aquatic products for export at high rates of foreign exchange. The export of one ton of prawns will bring back in exchange 56 tons of wheat.[11]

The Oriental or Japanese prawn receives much attention from Chinese culturists. By 1979, some 50 counties and cities had established prawn culture facilities. The Chinese want to build one or two state breeding farms in each coastal county. A number of Japanese and Hong Kong joint ventures in prawn farming have been set up.[12]

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[9] The dry weight of most seaweeds is about one-fifth their wet weight. The Chinese generally include the dry weight of seaweed in their aggregate statistics. The UN Food and Agriculture Organization lists seaweeds separately.

[10] C.J. Grant, et al. *Fisheries in China: A report on a mission to China under the Australia-China Agricultural Exchange Programme*, 1983

[11] Renmin Ribao (Peoples Daily) October 18, 1978

Despite much interest in prawn culture, Chinese production is still limited. Total output in 1983 was 2,800 tons up from 1,250 in 1979.[13] Popularization of eyestalk-ablation spawning techniques in the early 1980s will allow prawn breeding centers to develop a steadier supply of larvae for their operations. In 1982, some 1.6 billion fry were produced using this method.[14]

Marine finfish culture in China remains largely developmental. The greatest harvest comes from two mullet species whose wild fry are impounded and reared in large enclosures of coastal waters. Artificial propagation techniques have been developed for mullet, yellow sea bream, and giant Malaysian perch. As a result, production of these fish should increase in the future.

Work proceeds on techniques to rear grouper, sole, mock halibut, and Japanese sea bream. Most recently, silver salmon introduced from Canada is being raised by two North China research facilities.

Some mariculture research searches for ways to increase the recruitment of juvenile fish into the fishable stock. The Yellow Sea Fisheries Research Institute rears the fry of black porgy, mock halibut, mullet, and *Fugu* (puffer fish) in order to their natural populations.[16]

SEAWEED PRODUCTION

China produced forty-five percent of the world's seaweed harvest in 1982, nearly 230,000 tons by dry weight. Japan, the next largest producer, harvested less than half this amount. Most of China's seaweed harvest (95% in 1982) comes from kelp (Laminaria japonica). The bulk of the remainder comes from laver, but other seaweeds such as wakane, agar-agar, and Eucheuma are cultivated, too.

Kelp is not a native to China, but has been naturalized in North China waters since the 1920s. The development of kelp culture ranks as one of the major successes in Modern China's aquatic products industry. Pre-1949 harvests peaked at 62 tons dry weight, but by 1959 kelp production reached 24,000 tons.[17] Development of heat tolerant strains during the 1960s allows kelp culture as far south as Guangdong. Recent harvests have ranged from 225,000 to 250,000 tons. A portion of the kelp harvest goes to produce alginates used as stabilizers and emulsifiers in food preparations, medicines and plastics. Other kelp is processed into fertilizer. Much of the kelp, however, is used as a valued food and source of dietary iodine.

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[12] Jaydee Hanson, China's fisheries: scaling up production. The Chinese Business Review, May-June 1980, 25-30.

[13] Zhongguo Baike Nianjian, 1980 in JPRS 78263 and cable from US Embassy Beijing.

[14] Beijing Review, July 26, 1982, p. 29.

[15] Grant, et al., 1983.

[16] T.H. Cheng. Production of Kelp—a major aspect of China's exploitation of the sea. Economic Botany. Volume 23 (1969) pp. 215-236.

FRESHWATER FISHERIES

China has a long history of freshwater fisheries and aquaculture. Archeological remains leave no doubt that fish, especially carp, was an important part of the Chinese diet by the Yangshao period (5000-4000 BC).[17] Nets, silk lines and bamboo rods probably represent the first examples of Chinese fishing technology to be transferred throughout the world. The Chinese were among the first peoples to develop aquaculture and establish strict fishing regulations.

Before 1958, Chinese fish culture, although the world's most extensive, relied on obtaining wild carp fry from spawning areas in the Zhu Jiang and Chang Jiang river systems. Fish culture away from such areas was extremely limited by difficulties in transporting live fry. Between 1958 and 1961, Chinese scientists succeeded in artificially propagating silver carp, big head carp, grass carp and black carp. These achievements allowed culture of these four "family" carps beyond their natural range. These and subsequent developments in cultural practices help spread fish culture to nearly every Chinese province by the early 1980s. More than 3.2 million ha of water produced 1.4 million tons of cultured freshwater fish in 1983; while only 410,000 tons came from freshwater capture fisheries the same year.[18]

TABLE 4.—FRESHWATER FISH YIELD BY CATEGORY, 1971-1982

[In million metric tons]

Year	Total	Fish	Crustaceans	Molluscs
1971	935.9	879.7	21.4	34.8
1972	927.8	875.5	17.3	35.0
1973	1,019.8	971.2	22.1	26.5
1974	1,027.8	971.6	28.9	27.3
1975	1,065.0	1,002.9	38.6	23.6
1976	1,056.5	998.7	36.1	21.7
1977	1,076.1	1,019.5	32.3	24.3
1978	1,058.7	997.1	38.1	23.5
1979	1,115.9	1,052.7	43.5	19.6
1980	1,239.9	1,163.3	51.6	25.0
1931	1,373.6	1,289.8	51.4	32.4
1982	1,561.9	1,479.0	56.4	26.5

Source: 1971-1978, *Zhu Deshan*, 1980, 1979-1982, "FAO Yearbook of Fisheries Statistics," 1982

Of the more than 700 native freshwater fish in China, only 20 or so economically important fish account for nearly all the value of the fishery. The four "family" carps and mud carp (also called Chinese dace) comprise most of the total catch. Their feeding habits allow them to be raised together in mixed culture.[19] Silver carp feeds on phytoplankton, bighead on zoo plankton, grass carp on larger aquatic plants, mud carp on detritus and black carp on mollusks. Common carp and crucian carp, which both feed on benthic organisms, grow well in mixed culture and contribute substantially to overall yield.

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[17] Wu Hsien-wen, "Yin xu di yu gu", Chinese Journal of Archeology, Volume 4, pp. 153-86, 1949.

[18] See Table 1.

[19] The long history of these fish being reared together and not their genetic relationships earn them the collective sobriquet—"family fish".

Most of the other economically important fish are cultured with the "family" carps. Other fish because of their feeding habits or water temperature requirements cannot be poly-cultured. The voracious Japanese eel raised for the export market and rainbow trout raised in North China in a few localities are among these. During 1982, Chinese scientists succeeded in artificially breeding Ilisha herring and a Thai catfish, *Clarius butrachus.*[20] Wider culture of these favored foods should be expected in the future.

While most of the freshwater harvest comes from finfish, crustaceans and mollusks contribute significantly to Chinese fresh water fisheries.[21] The decline of natural crab fisheries in Chang Jiang basin lakes prompted the Chinese to develop restocking methods for several species of crab. Since 1975, Chinese scientists in Zhejiang, Anhui and Jiangsu have experimented with the artificial breeding of these crabs.[22] River clams, cultured for their meat and pearls, constitute another major freshwater enterprise.

IV. FISHING FLEET AND PORTS

A most notable aspect of China's fisheries development has been the rapid motorization of its in-shore fleet. By the end of 1981, China's ocean fishing fleet consisted of 63,000 motorized fishing craft with 2.7 million horsepower. Nearly a third of these vessels joined the fleet between 1979 and 1981. Most of these newly motorized vessels have less than 20 horsepower and belong to collectives or individuals for whom fishing had not been a major activity previously.[23] These new entrants to an already over crowded in-shore fishery may endanger less-valued species that up to now escaped overfishing. Fortunately, fishing practices have changed as fish stocks declined (some would argue by necessity). Bottom trawling and fixed nets produced two-thirds of the nearshore catch in 1979,[24] but only about half of the 1982 catch.[25] Output from seining, drift netting and hooking increased. These techniques catch more free-swimming (pelagic) fish; bottom trawling, on the other hand, takes mainly bottom dwelling (demersal) species.

State-owned fisheries, unlike commune and family operations, have not greatly expanded their efforts in near-shore waters since 1979. Instead, they concentrated on improving their ability to exploit more distant fisheries and the profitability of their operations.

Seventeen of the twenty-seven state-owned fishery companies are considered key operations. These 17 companies operate some 2000 vessels and catch between 500,000 and 600,000 tons of fish annually. They generally have shore processing and cold storage facilities, ice-making plants, boat building repair and maintenance yards.

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[20] Yu Zhenyan. "China's Aquatic Products Industry" in Zhongguo Jingji Nianjian. 1983 (Almanac of China's Economy) translated in FPRS-CEA-84-081-1.

[21] See Table 1

[22] Sun Jiayi, et al. Artificial Propagation of Crab Larvae. Zhongguo Baike Nianjian. 1980 translated in JPRS 78263.

[23] Yu Zhenyan. China's Aquatic Froducts Industry. Zhongguo Jingji Nianjian. 1983 in JPRS-CEA-84-081-1.

[24] Zhongguo Baike Nianjian, 1980 in JPRS 78263

[25] Yu in Zhongguo Jingji Nianiian. 1983 in JPRS-CEA-84-081-1.

State-owned functions are important centers for gathering basic data on fish stocks and modernizing the industry. They are the units most likely to enter into foreign trade and joint venture agreements. Since 1979, many of the state companies have used commodity trade agreements, with Japan and Hong Kong, to acquire new vessels, upgrade their equipment, and to get processing and preservation technologies. These acquisitions place many of these companies in a good position to enter into more expansive joint ventures. In 1984, the Zhoushan Island Fisheries Corporation entered into an 11 million yuan joint venture with Taiyo, a major Japanese fishery company.[26]

The Chinese fleet could expand its operations to foreign waters if negotiations begun in 1984 with the United States result in a Governing International Fisheries Agreement (GIFA). A GIFA would allow Chinese vessels to fish in US waters along with Japanese, Korean, Soviet, Polish and other foreign vessels. China may be expected to offer to form joint ventures with US companies in exchange for this privilege. A distant-water fisheries unit consisting of two fishing vessels and one survey ship conducted trial operations from its Shanghai base in the summer of 1984.[27]

China desires, in the meanwhile, to modernize its state-owned fleet. Sonar units are now being built in Shanghai. The Chinese hope to manufacture more fishing aids and instruments, navigation and communication systems.

PORTS

Most of China's 707 fishing ports are natural harbors lacking wharfs and facilities for sheltering vessels from the wind. Three hundred thirty-six ports have been developed and have at least basic amenities; of these the 27 state-owned ports and twenty or so others provide a full range of services. These ports typically have purchasing, storage and marketing units, vessel repair yards, cold stores, ice plants, rope and net manufacturers, and fish processors. The most developed have ship building yards. Major fishing ports include: Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Shanghai, Ningbo, Shenjiamen, Wenzhou, Mawei, Shantou, Guangzhou, Zhanjiang, Baimajing, and Behai.

V. PROCESSING, DISTRIBUTION, AND MARKETING

PROCESSING

Fish processing and handling remains comparatively backward with refrigeration limited. Salting accounts for about half the processed fish products. Still, by the end of 1982, the 200 cold storage facilities in China could hold 200,000 tons of fish awaiting processing. Ice making capacity grew to 2 million tons. Long term storage in these and other cold stores around China was available to only 500,000 tons—one-tenth China's annual catch.[28]

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[26] Personal Communication.

[27] Xinhua, Shanghai, 4 July 1984

[28] Grant, Fisheries in China, 1983, Zhongguo Baike Nianjian, 1980 in JPRS 78263

Canning of fish remains limited; twelve canneries process only 10,000 tons annually. Production of fish meal, fish liver oil, fish oil, and fish pastes has expanded rapidly, but remains small by world standards.

Handling of fish has been a major problem in Chinese fishery development. Prior to the 1980s, only the state-owned vessels had insulated holds and carried ice. Some Chinese fisheries experts believed 10 to 25 percent of the catch spoiled due to improper handling. Since 1979, many of the collectives' vessels have been fitted with insulated holds. Both state owned and collective operations are learning better handling techniques.

DISTRIBUTION

Distribution of fish beyond port cities remains a problem. Refrigerated transportation is as scarce on land as at sea. Most fresh products are necessarily consumed near the landing point. Increased yields from suburban fish farms, not better transportation, will make more fish available to inland cities.

Many freshwater fish, especially carps, travel well by specially designed barges. In the Zhu Jiang and Chang Jiang river systems live fish are transported this way. Indeed, most of the carp sent to Hong Kong from Guangdong are carried live by barge.

MARKETING

Fishery products, like other foodstuffs in the People's Republic of China, have been subject to many price and production controls. The state set up purchasing centers in the major marine fishing areas and piscicultural regions. State marketing and supply contracts were signed by the fishing units. Production quotas were set and the state purchased major economic species at set prices according to grade. Secondary species were sold on a freer basis and were subject to few price or production controls.[29]

Prior to 1979, only state and collective organizations could raise and sell fish. Since 1979, freer polices encouraged individuals to catch and raise fish to supplement the state market. Individual fishermen can sell their catch at farm produce markets. The state purchasing agency no longer monopolizes the transportation and marketing of fish; other dealers can now perform these activities.

These changes have provided more fish in markets throughout China. Their effect of fish prices varies by region. Because more prices are established through negotiation than before, some prices considerably. (Not necessarily a bad development if it means quality products demand higher prices.)

Nationwide, aquatic products prices rose 13.4 percent in 1983.[30] Some prices, however, declined. Prices in Guangzhou, China's largest market for fish, declined sharply between 1979 and 1984. During the summer of 1979 free market prices for grass carp ranged from 1.6 yuan per jin to 3.2 yuan per jin, or two to four times the rationed price.[31] In the five years since, a four-fold increase in the fish available in Guangzhou markets has reduced the fluctuating price to only .5 to 1 yuan more than the rationed price. According to the head of the Guangzhou Aquatic Products Company:

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[29] For a more complete discussion see: Jaydee R. Hanson, "Development and Management of Fisheries in Guangdong Province, 1949-1979," University of Hawaii Department of Geography, M.A. thesis, 1981.

[30] Beijing Review, 28 May 1984.

> Five years ago the price of fish was exorbitant because of short supplies and improper management. The retail price of grass carp . . . was 3.22 yuan per jin. Even at that price, it was hard to come by. But since 1980, the price has steadily dropped, and now it sells for 1.7 yuan per jin in the morning and 1 yuan after noon.[32]

Changes in marketing practices may increase the processing of fish products. Before Fujian Province relaxed purchasing requirements, one fourth of all small and low-priced fish spoiled. In 1983, higher prices began to be paid for quality products. All kinds of enterprises—state companies, communes, state farms, and households—were allowed to process and market class 2 and 3 nonplanned aquatic products. All were given equal access to funds and credit. Cold stores and processing plants were permitted to make purchases beyond the state plan in order to fully use their capacity. As a result, during 1983 39 small cold stores with a total capacity of 2,000 tons and 100 facilities to process fish sauce, fish meal, and seaweeds were established in Fujian. These new units alone processed nearly 40 percent of the 1983 catch.[33]

The success of these changed policies in Fujian, Guangdong, and elsewhere convinced Chinese authorities to include fisheries products in a general relaxation of agricultural price and marketing controls. Price controls on fishery products are to be gradually relaxed throughout the country. Local prices may rise, but it is hoped that increased prices will encourage greater production and eventually, lower prices.[34]

VI. ENVIRONMENTAL PROBLEMS

Chinese planners wanted to optimize every aspect of development at once; only since 1977 have they freely acknowledged major conflicts between fisheries development and other national goals. Numerous fishery officials and newspaper articles have charged that industrial pollution, land reclamation and water projects severely limit the potential of fisheries throughout China. Within the fishing industry, production has been the prime goal of fisheries management; conservation received scant attention until recently.[35]

While all fisheries in China suffer from environmental damage, fresh water catch (as opposed to culture) has declined the most. China's fresh water catch dropped rapidly, falling from more than 600,000 tons in the mid sixties to 300,000 tons by 1979.[36] Recently,

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[31] Jaydee R. Hanson, Trip Notes, Summer 1979.

[32] Chen Xiaojun, Fish Markets in Guangzhou. China Reconstructs. December 1984, pp. 58-59.

[33] Zhongguo Nongmin Bao, 27 March 1984, p.1.

[34] Beijing Review, 18 February 1985, p. 17.

[35] Jaydee R. Hanson, Environmental Problems in the Development of Chinese Fisheries, China Geographer, No. 12: Environment. Westview Press, Boulder, Colo. 1985, pp. 141-156.

[36] Zhu Deshan, A brief introduction to the fisheries of China. FAO Fisheries Circular, No. 726, 1980.

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catches have increased, but this may result more from increased effort by households than recovered stocks.

WETLANDS RECLAMATION

In their desire to remake (reclaim) nature to better serve agriculture, the Chinese discounted alternative uses of the land. Wetlands have been filled with little regard for their alternative uses as flood water catchments, fish and wildlife habitats, and spawning and nursery grounds for many fish. Filling wetlands essential to fisheries caused catches to decline and reduced opportunities for fisheries development. The massive reclamation to land around freshwater lakes, ponds, and rivers led to the loss of over 1.5 million ha of most productive fisheries. In the provinces along the Chang Jiang, success of land reclamation programs meant disaster for fisheries.[37]

Hubei, "the province of a thousand lakes", now has fewer than 500 sizable lakes; its total lake surface had been reduced by three quarters. Hunan's Dongting Hu covers only one-third its 1949 area. Ony 26,000 ha of Jiangxi's once mammoth Boyang Hu remain for fishing.[38]

During the Cultural Revolution, some localities in a misguided effort to become totally self suffucient in grain production even drained fish ponds in order to grow more rice. Most of these ponds have now been returned to fish production.

Sea fisheries suffered from reclamation efforts, too. Between 1959 and 1978, nearly 70,000 ha of fish and shellfish breeding grounds gave way to farm crops. Oyster, clam, mussel and mullet production dropped.[39]

Even fishery-related projects can damage fisheries. If mariculture sites claim areas used for spawning or nurseries by wild species, the increase in cultured fish may come at the expense of other fisheries.

WATER PROJECTS

China's many dam, canal and other water projects have not adequately provided for the needs of fisheries. Perhaps the best example of the failure to include fisheries' needs in overall planning is the Gezhou Dam across the Chang Jiang. Despite injunctions from both Mao and Zhou Enlai to save the fish during the dam's construction, fish passages were not provided. Scientists predict that catches of carps, eels, and breams could be greatly reduced; the white sturgeon, the Chinese sturgeon, and the paddlefish may become extinct. They note that continued production of sturgeon roe alone is worth more than the 20 million yuan a fish passage would cost. Fish hatcheries and aquaculture, they argue, can supplement natural production, not replace it.[40]

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[37] Renmin Ribao, 10 March 1981, in JPRS 77878.

[38] Renmin Ribao, 18 October 1978 in JPRS 72921.

[39] Renmin Ribao, 18 Oct. 1978.

[40] Renmin Ribao, 10 March 1981 and 18 February 1981 in JPRS 77878.

WATER POLLUTION

China's factories daily dump some 4,000 tons of untreated industrial wastes into its rivers, lakes and seas. The waterways of China's industrial Northeast are particularly polluted. Heavy metal contamination of these waters continues to be a problem and cases of mercury poisoning from eating fish have been reported.[41] Oil spills in the Yellow Sea and Bohai greatly affected the areas' shrimp and scallop fisheries.[42]

Fishermen in many localities have protested the polluting of their fishing grounds, but action by factories and mines to reduce wastes has been slow in coming. The situation near Changzhou, an industrial city in Jiangsu, became especially critical. Fishermen there once caught 1,000 tons of fish a year, but their grounds were contaminated with phenol, kerosene, and other wastes, the few fish they caught could not be sold because of high phenol content. Frustrated over losing their livelihood, the fishermen marched on the factories in early 1980 to protest and demand food. The polluters were subsequently fined 50,000 yuan, but continued polluting.[43]

Agricultural chemicals also can reduce fishery yields. The culture of fish in paddy nearly disappeared due to increased use of pesticides on rice. Only in 1983 and 1984 did paddy fish culture again reach significant levels (40,000 and 60,000 tons respectively). In some areas, pesticides have even been used to poison fish, killing adult and juvenile fish alike, and threatening human health when the fish are eaten.[44]

OVERFISHING

After the founding of the PRC, vessel construction programs and expanded fishing led to dramatic increase in fish catches. By 1952, catches equaled the pre-war high. Catches in 1957 produced a record 3.2 million tons, nearly six times the 1949 total (See Table 1). In 1958, after Chinese scientists artificially induced spawning in silver carp, the potential for expanded aquaculture coupled with the dramatic increases in fish catch led many Chinese government officials to believe that all that was needed to increase fish production was more effort. This attitude fit well with the Great Leap Forward emphasis on sheer effort as a way to develop China.

In the spring of 1959, all communes were urged to set up fishing units if possible.[45] Every effort was to be made to fish as long as possible; to catch as much as possible.[46] They even fished through spawning seasons. The 1959 catch was reported as over 5 million tons, a ten-fold increase from 1949.[47] While later Chinese statistics dispute this figure, there can be no doubt that fishing effort expanded greatly and pleas for conservation of the resource went unheeded.

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[41] Pan Yunzhou. Mercury pollution in the Songhuajiang. Huanjing Baohu (Environmental Protection) No. 2, 1980 in JPRS 76753.

[42] Yue Ping. There should be a radical change in the guiding thought for fishery development. Hongqi (Red Flag) No. 23, 1 December 1980 p. 16-20 in JPRS 77290.

[43] Guangming Ribao, 6 June 1980 in JPRS 75927 and 22 October 1980 in JPRS 77316.

[44] Nanfang Ribao, 8 Janaury 1980 in JPRS 75682.

[45] Da Gong Bao, 10 May 1959.

[46] Renmin Ribao, 14 April 1959.

[47] Renmin Ribao, 28 May 1960.

By 1962, both fisheries scientists and politicians recognized overfishing as a serious problem. A paper at the Seventh Plenum of the Western Pacific Regional Fisheries Research Commission warned that irrational fishing of juvenile small yellow croakers in previous years had depleted the resource.[48] Other reports confirmed overfishing in other economic fish stocks. National fishery regulations promulgated in 1964 prohibited many of the most destructive practices of the Great Leap Forward era. By 1965, catches had returned to 1957 levels (see Table 1).

Fisheries production declined again during the Cultural Revolution (especially 1966–69). Overfishing contributed only in part to this decline as political activities, inadequate supplies, and unrepaired vessels kept many crews in port during this period.

Fish production increased annually between 1970 and 1977, but declined in 1978 and 1979. Since 1979 catches have again increased. This trend does not mean that the Chinese have solved their overfishing problem. They have maintained production by shifting their effort to less desirable species (see Table 2). Even species which haven't declined appreciably are being fished beyond their maximum sustainable yield and younger and younger fish are being caught, greatly reducing the population that becomes sexually mature. Most commercial species in China's near shore waters are fully exploited or over-exploited. Only a few pleagic species are believed able to withstand increased fishing.[49]

A most disturbing trend in China's marine fisheries is increased shrimping. Heavy shrimping in the Bohai and Yellow Sea have already depleted stocks of fish with a longer lifespan that the short-lived shrimp. During the fishing season, prime grounds are trawled several times daily. Despite periodic closures, fish stocks have not yet recovered. In some places the shrimp themselves are endangered. Such heavy shrimping led to the collapse of the Gulf of Thailand shrimp fishery, forcing Thai fishermen to fish in the waters of other nations, including China.

Nearly every major Chinese fishing company has contracts with Japanese or Hong Kong concerns for help in modernizing their fleets. In exchange the foreign company, under the terms of many of these commodity trade agreements, receive shrimp.[50] The foreign exchange benefits of of such agreements may not offset the potential ecological damage.

VII. FISHERY TRADE

Chinese aquatic products are sold primarily within China. In recent years, the annual exports ranged from 88,000 tons to 107,000 tons. The principal commodities exported are fresh fish (carp, bream, eel), frozen fish, frozen shrimp, clams and ark shell, jellyfish, beche-de-mer and roe.

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[48] Cheng Jufeng. Xiao huangyu dili de yenqiu (Research on the distribution and abundance of small yellow croakers, "Taiping Yang Xibu Yanqiu Weiyuanhui" Vol. 7 Kexue Qubanshe, Beijing, 1964. pp. 35–70.

[49] Zhu, Fisheries in China, FAO Fisheries Circular, No. 726, 1980.

[50] Hanson, China's Fisheries, China Business Review, May-June 1980.

TABLE 5.—*Exports of aquatic products from China, 1972-1982*

[In million metric tons]

Year:	
1972	96.4
1973	102.3
1974	107.4
1975	100.7
1976	93.4
1977	87.7
1978	92.0
1979	84.2
1980	93.4
1981	101.2
1982	93.9

Source: FAO Fisheries Circular, No. 726; FAO Yearbook of Fishery Statistics, 1982.

The total value of these exports ranged between 183 million US dollars and 425 million US dollars during the period, 1975 to 1982.

TABLE 6.—*Value of Chinese exports, 1970–1982*

[In millions U.S. dollars]

Year:	
1970	67.9
1975	182.8
1978	281.6
1979	371.2
1980	398.8
1981	425.9
1982	385.8

Source: US Central Intelligence Agency, China: International Trade, March 1984.

Japan, Hong Kong and Macau account for most of China's fishery exports. In 1978, Japan and Hong Kong together imported $213 million worth of Chinese fishery products, or seventy-five percent of total Chinese fishery exports. Since then, Chinese exports to the US and other nations have increased, but Japan and Hong Kong remain China's major markets for fish.

EXPORTS TO JAPAN

China's exports to Japan consist primarily of fresh and frozen prawns and specialty products like fish roes and jellyfish. The value of the exports inceased 16 percent between 1978 and 1983, while the quantity of the exports increased 19 percent (see Table 7). The change in the value and quantity reflect both changes in the international market price for fishery products (especially shrimp) and changes in the Chinese industry.

TABLE 7.—FISHERIES PRODUCTS IMPORTED FROM CHINA BY JAPAN, 1978 AND 1983

[Quantity in metric tons and value in millions of yen]

Item	1978		1983		Percent change	
	Quantity	Value	Quantity	Value	Quantity	Value
Live fish (mostly eels)	25	2,187	1,058	2,816	+4,132	+28.7
Fresh or frozen:						
Spanish mackerel	1,373	366	774	263	-43.6	-28.1
Prawns, etc	9,205	18,727	9,458	16,490	+2.7	-11.9
Clams	6,957	1,391	10,679	2,189	+53.5	+57.4
Other	3,950	1,718	4,367	1,140	+10.6	-33.6

TABLE 7.—FISHERIES PRODUCTS IMPORTED FROM CHINA BY JAPAN, 1978 AND 1983—Continued

[Quantity in metric tons and value in millions of yen]

Item	1978		1983		Percent change	
	Quantity	Value	Quantity	Value	Quantity	Value
Salted, smoked:						
Herring, urchin, cod roe	700	1,869	1,140	3,857	+62.8	+106.4
Jellyfish, trepang	1,117	1,344	2,673	2,443	+139.3	+81.8
Other	60	63	18	26	−70.0	−58.7
Seaweeds	1,412	248	2,311	108	+63.6	−56.4
Canned and prepared: Largely crustaceans and mollusks	9,514	243	8,171	3,243	−14.1	+1,234.5
Total	34,313	28,156	40,651	32,576	+18.5	+15.7

Source: Japanese Import Statistics.

The export of live fish (mostly eels) to Japan increased 4132 percent by weight and 29 percent by value, illustrating the success of Japan-China joint ventures in eel farming. Whereas in 1978, China exported eel fry for rearing in Japan, now China exports eel ready for the table.

Herring roe exports increased markedly. Much of the herring roe China now exports to Japan comes from roe herring bought from the US. China processes the roe for shipment to Japan and keeps the herring for domestic consumption.

Improvements in canning and processing facilities in China are reflected in an 1234 percent increase in the value of canned fisheries products exported to Japan.

Clam exports increased by over 50 percent in both quantity and value between 1978 and 1983 indicating that China has been successful in developing clam culture for the export market.

Shrimp continues as the mainstay of Japan-China fisheries trade, although total shrimp exports to Japan are somewhat static. As better transportation links are developed between Japan and China's shrimp producing areas, greater sales of fresh shrimp could enable the Chinese to receive a higher price for the same amounts of shrimp.

CHINESE FISHERIES TRADE WITH THE US

The United States and the People's Republic of China first began direct fisheries trade in the early 1970s. Although still quite small, the trade could expand significantly. In 1984, two way trade between the US and China totaled $20 million, nearly equal to the record year 1981 when the trade was $24 million. China's fishery imports from the US consist mainly of herring, while its exports to the US are mostly shrimp and other shellfish.

China currently supplies less than 1 percent of US fishery imports. Nevertheless, the US is one of China's leading markets for fish. In 1984, the US imported 4,750 tons of fishery products from China worth $20.25 million.

Shrimp is by far the most important part of US-China fisheries trade. Shrimp accounted for only one-third of the quantity of fishery imports from China in 1984, but sixty percent of the value of those imports. Most of the shrimp is shipped with no processing other than freezing, but some are peeled and deveined, and some canned.

China's shipments of crab, oyster, lobster, and some other shellfish showed continued increases in 1984. Increased shipments of these products will likely account for much of any increase in future Chinese fish sales to the US. These commodities and shrimp are greatly subject to weakened market demand. Most US consumers eat fish outside the home; recessions discourage persons from eating out. Witness the significant declines in US fishery imports from China (and most other nations) in 1980 and 1983. Worldwide economic conditions are quickly reflected in the seafood trade.

US exports to China consist chiefly of whole herring shipped to China for processing before the roe is sold to Japan. This trade totaled about $0.7 million in 1984. Other products requiring labor intensive processing could also be processed in China for the Asian market. US fishery officials would like China to agree to purchase more US fish in exchange for right to fish US waters.

The US has three main reasons for continued interest in China's fishery trade. First, the Chinese represent an excellent source of potentially high quality fisheries products. Secondly, China may be able to buy more US fishery products and technologies. Thirdly, China will continue to be a major competitor with the US fishing industry for the international market, especially the Asian market.

VIII. INTERNATIONAL AGREEMENTS, JOINT VENTURES, AND FOREIGN AID

The fact that fish (and fishermen) often ignore political boundaries both generates fishing conflicts and mechanisms to resolve them. Early in the history of the Peoples Republic, China began to negotiate agreements or at least accommodations with states fishing in waters near China. The Western Pacific Fisheries Research Commission was formed by the communist states of Asia in 1956 to coordinate fisheries research and stock management activities. About the same time, Japan agreed to accept restrictions on its fishing effort in waters near China. Other agreements with Japan have since then served to further limit Japan's ability to fish in waters near China. In effect, China has been able, with respect to Japan, to exercise all the aspects of a 200-mile fisheries zone without having to declare one.

TABLE 8.—UNITED STATES FISHERY IMPORTS FROM CHINA, BY SPECIES AND QUANTITY, 1979–84

[In metric tons]

Species	Year					
	1979	1980	1981	1982	1983	1984
Edible						
Fish						
Mackerel	11.1	110.7	333.4	225.2	173.2	296.4
Flatfish	15.3			10.0	140.1	135.8
Pollock				36.0	36.0	246.6
Groundfish	16.1	27.4	29.3	45.7	35.9	163.1
Pacific cod	0.5		0.2		22.3	6.4
Herring	3.3	2.6	0.2	3.0	0.3	5
Sardines	4.4	6.9	1.5	25.6		23.4

TABLE 8.—UNITED STATES FISHERY IMPORTS FROM CHINA, BY SPECIES AND QUANTITY, 1979-84—Continued

[In metric tons]

Species	Year					
	1979	1980	1981	1982	1983	1984
Tuna	0.6	3.0	333.0	354.5		213.0
Other	923.8	884.0	1,595.5	1,446.0	1,275.9	1,294.7
Shellfish						
Shrimp	1,355.6	435.5	2,298.6	1,305.2	879.0	1,591.1
Oysters	13.5	20.1	12.7	16.3	82.5	274.9
Crabs	0.6	0.5	37.3	37.4	68.3	145.6
Clams	17.0	36.1	31.1	54.6	58.9	38.6
Scallops	0.2	0.4	0.6	1.5	23.6	1.9
Abalone	1.2	7.4	4.7	7.6	12.4	7.3
Lobsters	7.2	5.8	0.2	1.7	6.9	30.9
Other	99.4	93.2	108.3	253.3	163.2	229.9
Other, edible [1]	46.8	18.0	16.7	37.2	40.9	205.2
Total, edible [2]	2,516.6	1,651.6	4,802.9	3,860.4	3,019.5	4,698.5
Inedible	3.3	4.8	6.3	7.4	36.6	48.7
Grand total [2]	2,519.9	1,656.4	4,809.2	3,867.8	3,056.1	4,747.2

[1] Includes fish sticks, pastes, etc.
[2] Totals may not agree because of rounding.

Source: U.S. Department of Commerce, Bureau of the Census.

TABLE 9.—UNITED STATES FISHERY IMPORTS FROM CHINA, BY SPECIES AND VALUE, 1979-84

[In millions U.S. dollars]

Species	Year					
	1979	1980	1981	1982	1983	1984
Edible						
Fish						
Flatfish	23.0			18.4	274.3	284.2
Mackerel	10.4	71.6	227.8	146.4	125.4	208.7
Groundfish	44.1	95.2	99.5	132.8	92.2	307.1
Pacific cod	1.2		1.1		38.3	11.1
Pollock				54.0	34.9	337.6
Herring	4.4	2.9	0.1	17.3	0.6	0.3
Sardines	4.9	6.2	1.9	35.6		26.4
Tuna	0.4	9.3	904.4	909.5		292.5
Other	1,570.5	1,890.8	3,536.7	3,279.4	3,031.4	3,253.6
Shellfish						
Shrimp	14,904.4	3,455.8	17,718.4	11,525.4	6,055.1	12,450.1
Scallops	6.8	17.1	25.0	32.4	258.1	57.2
Oysters	115.6	87.3	63.2	78.3	252.5	321.9
Crabs	2.4	3.9	91.9	124.1	197.1	44.3
Abalone	15.7	60.5	68.2	133.5	181.3	135.7
Clams	18.5	58.8	68.6	94.5	99.3	66.4
Lobsters	27.5	40.7	1.7	15.7	73.5	310.6
Other	515.9	521.2	650.8	1,154.1	817.3	1,236.2
Other, edible [1]	214.1	119.3	126.7	281.2	161.7	282.2
Total, edible [2]	17,479.5	6,440.6	23,586.7	18,032.4	11,692.9	20,028.3
Inedible	70.9	84.3	138.1	89.3	200.9	223.6
Grand total [2]	17,550.4	6,524.9	23,724.8	18,121.7	11,893.8	20,251.9

[1] Includes fish sticks, pastes, etc.
[2] Totals may not agree because of rounding.

Source: U.S. Department of Commerce, Bureau of the Census.

The Chinese solved the problem of Hong Kong fishermen by allowing them to be licensed to fish by local Chinese authorities. So when a Hong Kong vessel fishes in Chinese waters, it does so as a Chinese licensee. Indeed, Hong Kong's fishing industry has become so closely related to that of China, that it may be easier to consider the Hong Kong relationship a special case rather than an example of international agreements.

China/Taiwan difficulties pose special problems for Chinese fishermen. Fishermen from both areas fish the Taiwan Strait sometimes even trading with each other. China will give assistance to Taiwan fishermen in emergency and generally tries to use such instances for positive propaganda although fishermen from Taiwan or China fishing to close to the others area of control risk capture.

Vietnam and China's hostilities since 1979 have not adversely affected China's ability to fish the Beibuwan (Gulf of Tonkin). Except for a few lapses, the two sides have generally observed earlier agreements on how to divide the waters of the Beibuwan. Greater problems could be expected if either party increased fishing effort near the Nansha (Spratley's), although neither China nor Vietnam have much ability to effectively police the area. The Chinese have expanded fishing near the Xisha (Paracel's) at least in part to maintain their claim to that group.

China has recently negotiated a Governing International Fisheries Agreement (GIFA) with the US. During initial talks in September of 1984, the Chinese told the US side that they were interested in planning joint ventures and direct fishing in US waters. They want to fish for pollock, sole, flounder, and rockfish and hope to take about 20 to 30,000 tons annually. A number of US companies, including Mrs. Pauls, Pacific Rim Ventures, Marine Fisheries Company—Seattle, and the Alaska Trawlers Association, have approached China regarding possible joint ventures. Strong advocacy from US companies helped speed the negotiation of GIFAs with other nations, so interest from US companies may have prompted that the US to present a draft agreement. The Chinese may be willing to purchase US vessels to fish in US. waters, as they would need to acquire 6-10 vessels capable of high-seas trawling. Some vessels have already been purchased from Japan, but future purchases may be delayed until any joint ventures related to the GIFA are concluded. China has also discussed joint ventures with US tuna companies to fish South Pacific waters. The US companies already have such ventures with Korea and Taiwan. Permission to fish in US waters may encourage the Chinese to approve joint ventures with US fishing firms elsewhere, including tuna ventures. China's desire to be recognized as an important fishing power may have been as much a factor in its desire for a GIFA as the fish it could catch in US waters.

INTERNATIONAL ASSISTANCE

Since joining the UN Food and Agriculture Organization in the mid 1970s, China has established with the FAO and the UN Development Program two facilities for the training of foreign students in aquaculture. By the end of 1984, these facilities near Guangzhou and Wuxi, had trained over 300 pisciculturists from some 20 countries in Asia and the Pacific.

Chinese fisheries assistance programs have also been set up in Africa. Mauritania, Uganda, Central African Republican, Somalia, and Madagascar are known to have received Chinese fisheries aid in the early 1980s.[51]

OTHER JOINT VENTURES

China, despite all the problems with its own industry (or perhaps because of them) is interested in developing joint ventures to profitably use its experience and fisheries skill. The China International Agriculture, Animal Husbandry, and Fisheries Corporation has signed carp breeding contracts with Libya[52] and prawn, beche-de-mer, and seaweed culture contracts with Sri Lanka.[53] Other companies have negotiated joint ventures with Pakistan [54] and Singapore.[55]

IX. FUTURE DEVELOPMENTS

The Chinese proverb, "Give a person a fish and they eat for a day; teach them to fish and they eat for a lifetime", is better translated: "teach fish culture and they eat for a lifetime." The Chinese are now teaching millions how to culture and eat fish for life. Much of the future of Chinese fisheries depends on how well the Chinese can carry out what they know well how to do. The successful expansion of fish culture in the early 1980s and a doubling of yield from culture suggests that in this area, the Chinese will likely succeed. As long as the Chinese continue to provide incentives to collectives and households to grow fish and protect the waters they use, freshwater culture should continue to expand, albeit at a more modest rate than in the past few years.

Marine culture should also continue to expand, but a rapid expansion of finfish culture is not likely until the Chinese or others solve the problems of fry production and feed. This is one area where China and Taiwan might be able to cooperate, both are working hard on very similar technical problems with identical or related species.

Increasing marine exports and their value will likely continue to be a focus of the Chinese industry. China currently exports less than 2 percent of its total fisheries production. With better quality controls and marine conservation, it should be able to increase exports without depriving its domestic market of fish. Indeed, the future should bring a better supply of higher quality products to both Chinese and foreign customers.

Developing distance water fisheries is a strong desire of the Chinese, but these efforts will have little effect on their overall catch. Rather they should be seen as a way to use a surplus of fishermen, earn foreign exchange, and demonstrate that China is a major fishing power.

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[51] Personal Communication, George Herfurth, National (U.S.) Marine Fisheries Service

[52] Xinhua, 21 Feb. 1984 in JPRS-CEA-84-020

[53] Fish Farming International, June 1983

[54] Fishing News International, September 1983

[55] Sydney Morning Herald, 9 April 1984

Strengthened administration of fisheries regulations in China is a key to China's continued development of its fisheries. China desires to fully implement a system of fishing permits. This system would, like a similar one in Japan, allocate the fisheries of particular areas to permitted units. If this can be done, and conflicts with other industries minimized, China will be well on its way to rational management of its fishery resources. Sustained production, not simply production increases, would be the goal, "Yu" might then truly be the name of both fish and surplus in China.

CHINESE FERTILIZER APPLICATION IN THE 1980s AND 1990s: ISSUES OF GROWTH, BALANCE, ALLOCATION, EFFICIENCY AND RESPONSE

By Bruce Stone*

CONTENTS

	Page
Introduction	453
Nitrogen Fertilizer Allocation and Development	458
Development of the Market for Phosphates, Potash and Trace Elements	474
Development of Fertilizer Production Through 1990	477
Fertilizer Development Targets Through 2000	479
Future Demand for Fertilizers	481
Pricing, Subsidy and Budget Allocational Issues	485
The Efficiency and Efficacy of Fertilizer Use	493

INTRODUCTION

China is currently the number three consumer of manufactured fertilizer in the world, following the United States and the Soviet Union, and could surpass the United States by 1990. China is also the number three producer, behind the same two countries, having quickly passed the leading European nations during the early 1970s, and Canada toward the end of the decade.[1] Over thousands of years, Chinese farmers have developed the peasant technology of recycling organic materials to a level of sophistication, ingenuity, intricacy and sheer labor intensity, paralleled only in Chinese cuisine. A good share of those farmers still have at least one foot in the thirteenth century. But as a mass peasantry, they have generally had no peers in organic manipulation of soil quality since at least that period in history.

Yet the demands placed on Chinese soils are overwhelming. Of China's 960 million hectares, little more than 100 million hectares are cultivated, including large tracts of extremely marginal and unproductive land. Only about 10-20 million hectares would be regarded as good land among other agriculturally powerful nations, and these Chinese areas have, for the most part, been continuously cultivated for thousands of years. Despite the massive increase in farm goods imports during the 1977-82 period, produce from these soils provides the nutritive and caloric foundation for more than one billion inhabitants. During the last three decades, net food imports have never exceeded 5 percent of consumption. By 1984 the total value of food exports exceeded imports, and by 1985 even grain trade volumes were practically in balance.

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[1] U.S. consumption was 21.5 million tons in 1980/81, fell to 16.5 million tons in 1982/83 (due primarily to acreage reductions during the PIC program), then recovered to 21.9 million tons in 1983/84, and dropped off slightly in 1984/85. Soviet consumption appears to have grown steadily reaching 20.1 million tons in 1982/83. U.S. production peaked at 23.4 million tons in 1980/81, troughed at 18.0 million tons in 1982/83, and recovered to 21-23 million tons for the last two statistics show Soviet production growing to 26.1 million tons in 1982/83. (Food and Agricultural Organization of the United Nations, *FAO Fertilizer Yearbook 1983*, Volume 33 (Rome: FAO, 1984), pp. 120-121, supplemented by Tennessee Valley Authority data and TVA estimates for 1983/84 and 1984/85 provided by Ed Harre, October 17, 1985). For Chinese data, see Tables 1, 2, and 6.

This feat was managed only with a very high average level of cropping intensity, a virtual absence of fallow as it's practiced in the United States, and extensive distribution of high yielding varieties (especially) rice, wheat and corn which suck nutrients from the soil at an accelerated rate. These soil depleting activities are partially ameliorated by a truly massive application of still relatively unmechanized farm labor to farmland capital construction tasks such as land-levelling, terracing, and other field preparation activities, construction and maintenance of water control systems, as well as the current production tasks including ploughing, sowing, transplanting, weeding, harvesting and, most notably, preparation and use of organic and manufactured fertilizers.

Despite some spectacular set-backs and mistakes, the increasing volume, quality and efficiency of modern input and farm labor application have carried Chinese agriculture along at what must be considered all in all to be a modestly successful pace among developing nations during the last three and a half decades, and, coupled with organizational reforms,[2] at an undeniably rapid rate of growth since 1975-77. Although China's crop varietal improvement and water control history are complementary facets, this success has been achieved most directly and has, at the same time, been constrained by soil nutrient delivery and enhancement efforts. Thus an examination of China's historical development in this respect provides both a constructive perspective on an important element in the development process for transforming peasant economies and is a key to understanding limitations and choices facing Chinese agriculture during the remainder of the century.

Tables 1 and 2 record China's application performance for manufactured fertilizers. If historical development is broken into five-year periods, compound application growth within each period has most often fallen within the 8-12 percent per year range, in itself a creditable performance. However, in three periods, 1952-57, 1962-67 and 1977-82, the rates were significantly higher: almost 20 percent per annum in the latter period and more than 35 percent in the other two. While the impact of rapid development in the earliest period can be largely discounted owing to the exceedingly low base levels and predominant allocation to economic crops in these years, Figure 1 illustrates that grain production growth in China tracks growth in absorption of nitrogen fertilizers fairly well subsequent to the agricultural disasters of the early 1960s, which were related to peculiar weather and policy difficulties. This is because virtually all Chinese farm soils are deficient in nitrogen and have been so for some time.[3] The depletion process for other nutrients has been retarded by the massive application of organic manures, leaving nitrogen as the critically deficient nutrient in most areas for much of the People's Republic history. Nitrogen is highly unstable in the principal manure forms such as human and animal wastes and is lost from crop residues when they are burned for fuel and returned to the soil as ashes, still a common peasant practice in China. While soils deficient in phosphates, potash and trace elements have been steadily increasing, the effect on China's most productive lands was, for many years, not too severe owing to better basic soil conditions, more concentrated manure application and higher priority accorded such areas in allocating available non-nitrogenous manufactured fertilizers.

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[2] In addition to providing labor and investment incentives for farmers, the reforms are likely to bring about improved allocative efficiency within local areas resulting in increased effectiveness of fertilizer use. See Bruce Stone, "China's 1985 Foodgrain Production Target: Issues and Prospects" in Anthony M. Tang and Bruce Stone, *Food Production in the People's Republic of China*, Research Report no. 15 (Washington, D.C.: International Food Policy Research Institute, 1980), pp. 149-153. Of course the price adjustments for farm goods and especially the structure of price changes facilitated rapid purchase of the large increments to fertilizer supply by well-organized high yield and market-oriented areas.

TABLE 1.—APPLICATION AND IMPORTS OF MANUFACTURED FERTILIZERS IN CHINA (AGGREGATED), 1952-84

	Total application in standard weight		Total application in nutrient weight		Proportions imported (percent)
	Thousand tons	Kg./cultivated hectare	Thousand tons	Kg./cultivated hectare	
1952	295	3.00	78	0.8	(71.8)
1957	1,794	15.75	373	3.3	(67.8)
1958	2,708	25.50			(72.6)
1959	2,533	24.00			(59.9)
1960	3,164	30.00			(39.5)
1961	2,242	21.[illegible]5			(50.5)
1962	3,105	30.00	630	6.1	(40.0)
1963	4,483	43.50			(56.5)
1964	5,363	51.75			(33.7)
1965	8,812	84.75	1,942	18.7	(31.0)
1966	12,562	122.25			(25.0)
1967	13,628	132.75			(35.8)
1968	10,129	99.75			(51.4)
1969	13,611	134.25			(40.8)
1970	15,351	156.75			(41.8)
1971	18,142	180.00			(35.3)
1972	20,931	207.75	4,207	41.6	(32.3)
1973	25,553	255.00	5,111	51.0	(24.6)
1974	24,051	240.75	4,858	48.6	(21.2)
1975	26,579	266.25	5,369	53.8	(18.6)
1976	28,850	290.25	5,828	58.6	(15.9)
1977	31,920	321.75	6,480	65.3	(20.0)
1978	43,681	439.50	8,840	88.9	(16.8)
1979	52,476	527.25	10,863	109.2	(16.0)
1980	(62,234)	(627)	12,694	127.8	(16.3)
1981	(65,546)	(660)	13,349	(134.4)	(14.2)
1982	(74,534)	(750)	15,134	(152.4)	(14.9)
1983	(81,588)	(821)	16,598	(167.1)	(18.6)
1984	(87,345)	(878)	17,731	(178.2)	(17.4)

Notes: Standard weight denotes chemical fertilizer consisting of 21 percent nitrogen, 18 percent phosphate or 25 percent potash. Figures in parentheses have been calculated from various official data. All other figures have appeared directly in recent official sources. Cultivated area estimates for 1981-84 were assumed to be identical to that implied by the official figures for 1980. All official cultivated area estimates may be underestimates, however. (See Bruce Stone, "The Use of Agricultural Statistics: Some National Aggregate Examples and Current State of the Art," in Randolph Barker, Radha Sinha and Beth Rose, (eds.), Chinese Agricultural Economy (Boulder: Westview, 1982), pp. 220-221). "Proportion imported" figures are calculated by dividing current year standard weight imports by current year standard weight application data and do not necessarily reflect the exact proportion of imported products among applied fertilizers in any given year.

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[3] According to a survey of 170 field experiments in 14 provinces beginning in 1935, 74 percent of Chinese farmland was deficient in nitrogen. According to Chinese estimates published in 1962, 80 percent were deficient, and according to various other pre-war estimates, 80-90 percent were deficient (Bruce Stone, "China's 1985 Foodgrain Production Target," op. cit., pp. 168 and 171). Recent reports confirm nitrogen deficiency on almost all Chinese farm soils.

Sources: These data appear or were calculated from data appearing in recent official Chinese sources cited in Bruce Stone, "An Examination of the Prospects for Demand for Chemical Fertilizers in the People's Republic of China," a paper prepared for the World Bank, Washington, D.C., January 3, 1984, Tables A1 and A4. The 1983 data was added from Zhongguo Guojia Tongjiju [State Statistical Bureau of China], Zhongguo Tongji Nianjian, 1984 [Statistical Yearbook of China, 1984] (Xianggang: Xianggang Jingji Daobao Shechuban [Hong Kong Economic Reporter Publishing House, 1984], pp. 175 and 410. The 1984 data are from State Statistical Burau of China, "Communique on Fulfilment of China's 1984 Economic and Social Development Plan (March 9, 1985) in Beijing Review, March 25, 1985, pp. I-VIII.

TABLE 2.—APPLICATION OF MANUFACTURED FERTILIZERS IN CHINA (DISAGGREGATED), 1972-83

	Nitrogen nutrients		Phosphate nutrients		Potash nutrients	
	Thousand tons	Kg/cultivated ha	Thousand tons	Kg/cultivated ha	Thousand tons	Kg/cultivated ha
1972	3,168	31.4	1,039	10.3	n.a.	n.a.
1973	3,643	36.4	1,468	14.7	n.a.	n.a.
1974	3,490	34.9	1,368	13.7	n.a.	n.a.
1975	4,022	40.3	1,347	13.5	n.a.	n.a.
1976	4,468	45.0	1,360	13.7	n.a.	n.a.
1977	5,065	51.1	1,415	14.3	n.a.	n.a.
1978	7,726	72.7	1,114	11.2	n.a.	n.a.
1979	8,997	90.4	1,758	17.7	108	1.1
1980	10,180	102.9	2,386	24.1	128	1.3
1981	10,363	(104.3)	2,735	(27.5)	251	2.5
1982	10,433	(105.0)	3,448	(34.7)	568	(5.7)
1983	11,633	(117.1)	3,514	(35.4)	584	(5.9)

Notes: Figures in parentheses were derived assuming no change in official cultivated area for 1980-83. All official cultivated area data may be underestimated (see Stone, "The Use of Agricultural Statistics," op. cit.). The 1982-83 data exclude application of compound fertilizers totalling 685,000 tons (1982) and 867,000 tons (1983). "n.a." indicates that the potash application data for 1972-78 are not available. However, production gradually rose to a pre-1981 peak of 20,000 tons in 1978 and imports averaged around 90,000 tons (1972-74).

Source: These data appear or were calculated from official data appearing in Bruce Stone, "An Examination of the Prospect for Demand for Chemical Fertilizers in the PRC," op. cit.

"Chinese Fertilizer Application in the 1980s and 1990s: Issues of Growth, Balance, Allocation, Efficiency and Response"

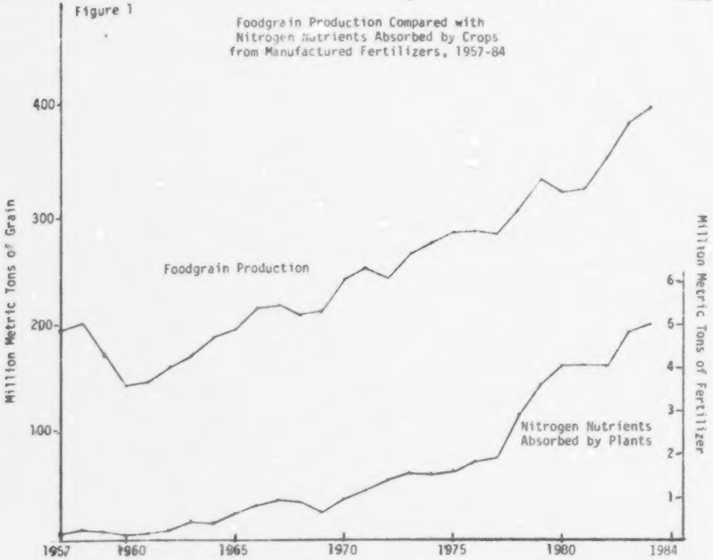

Figure 1

Foodgrain Production Compared with Nitrogen Nutrients Absorbed by Crops from Manufactured Fertilizers, 1957-84

NOTES: Foodgrain production includes paddy rice, wheat, coarse grains, soybeans, and, at one fifth natural weight, sweet and white potatoes. Nitrogen nutrients absorbed by crops were derived from chemical fertilizer application data and estimated breakdowns among imports and domestic large and small plant production. 30 percent of applied small plant production and 50 percent of the other categories were assumed to be absorbed.

SOURCES: The fertilizer data appear or were calculated from data appearing in recent official Chinese sources cited in Bruce Stone, "An Examination of the Prospects for Demand for Chemical Fertilizers in the People's Republic of China," a paper prepared for the World Bank, Washington, D.C., January 3, 1984, Tables A1-A5. The foodgrain production data and all 1983 data are from Zhongguo Guojia Tongjiju, *Zhongguo Tongji Nianjian, 1984*, pp. 141 and 175. 1984 data are from State Statistical Bureau, "Communique on Fulfilment of China's 1984 Economic and Social Development Plan," (March 9, 1985) in *Beijing Review*, March 25, 1985, pp. I-VIII.

The result was that while individual areas experienced diminishing returns to nitrogen application for particular periods, before alleviation of a particular local constraint or general upward production function shift, the whole of Chinese agriculture tended to move along a general path approximating constant returns to nitrogen absorbed from applied manufactured and organic fertilizers during most of the last three and a half decades.[4] There is some indication, however, that despite recent spectacular growth in agriculture, China is beginning to face a more serious diminishing returns situation among the major growing regions. The keys to understanding this problem may be found in the fertilizer allocation system resulting in highly skewed distribution of applied nutrients, and in more intractable constraints: including those preventing rapid increase in organic manure application; and those inhibiting more rapid progress in research, extension, and infrastructure which otherwise might ameliorate the impact of organic manure constraints.

NITROGEN FERTILIZER ALLOCATION AND DEVELOPMENT

Figure 2 shows the substantial differences in manufactured fertilizer application per sown hectare among Chinese provinces. Yet this type of interprovincial pattern is not particularly unusual among developing countries. Differences in the intensity of application among provinces are partly a natural consequence of difference in cropping patterns and locally suitable varieties in use, in levels and qualities of irrigation and other natural and slow-changing economic characteristics of each province. Uniform application would not be economically or physically efficient. But the extent of provincial skewness in China's case reflects proximity to production, historical, bureaucratic and infrastructural constraints on interprovincial trade,[5] and urban food marketing requirements,

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[4] Results of the best recent effort to quantify this aggregate relationship appear in Y.Y. Kueh, "Fertilizer Supplies and Foodgrain Production in China, 1952-82," *Food Policy*, Vol. 9, no. 3 (August 1984), pp. 219-231. Roughly constant returns to *absorbed* nitrogen from organic and manufactured sources does not exclude diminishing return to *applied* nitrogen for particular areas and periods.

[5] According to provincial authorities, very little fertilizer is traded among counties. Theoretically, county governments must obtain provincial permission to trade with a neighboring county. In Sichuan, counties within a prefecture may trade, but inter-prefectural trade requires provincial permission. Offer of intercounty trade volumes constitutes declaration that county production is adequate to meet all agricultural needs within the county and is normally not tendered for nitrogen fertilizers. Small amounts of phosphate are handled in this way among a minority of counties. But it appears that the trade is not handled on a strictly cash-with-permission-to-exchange basis; an equivalent value of (usually) ammonium bicarbonate must be offered in return. Thus nitrogren fertilizers *are* traded among counties, but locally, they are "never" declared in "excess supply."

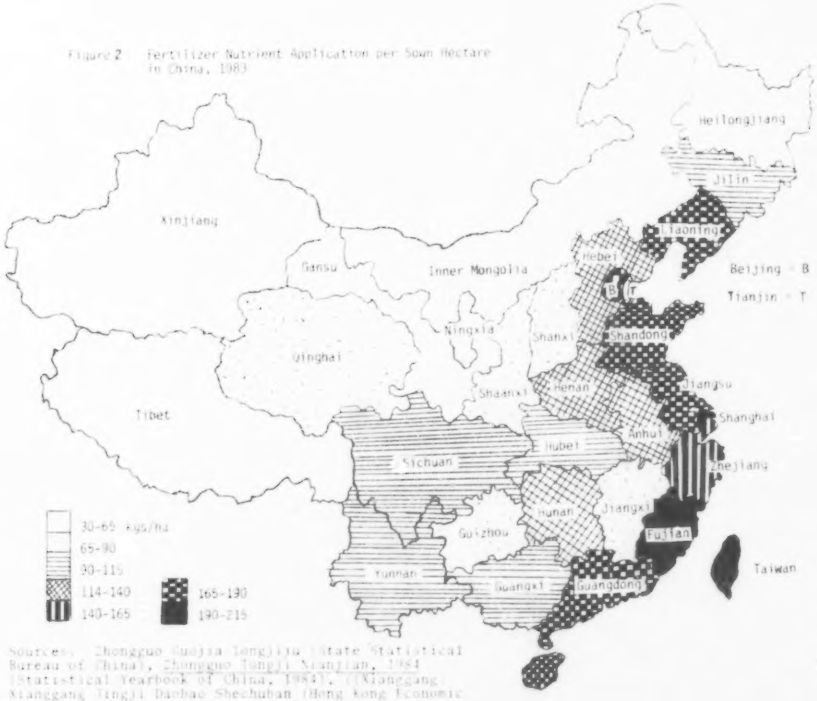
There is also relatively little legal trade among provinces and most of the transactions which do occur are of the nature of those described above: minor amounts moving among counties that are nearby, but separated by provincial boundaries. For example, in the early 1980s Sichuan's annual exports to other provinces consist of 100,000 tons (standard weight) of calcuim magnesium phosphate. In exchange, they receive 100,000 tons of ammonium bicarbonate. (Bruce Stone, "Fertilizer Marketing and Allocation in China," a paper prepared for the World Bank, Washington, D.C., June 1, 1984, pp. A2-A3). Recently, somewhat broader exceptions to fertilizer self-sufficiency have been permitted, and current development clearly considers interprovincial use. Yunnan, a major supplier of high grade phosphate ore, exported 93,300 tons of high grade fertilizer during the first two months of 1985, an increase of 23 percent (Yunnan Provincial Service, March 28, 1985). It is not yet clear whether the policy of requiring central approval for such transactions has changed.

Continued

rather than primary attention to overall productive efficiency or broad equity considerations.

Interprovincial investment liberalization has helped boost interprovincial trade in fertilizer and constituent raw materials. Guangdong's investment in Yunnan phosphate mines guarantees delivery of 50,000 tons of phosphate ore annually (Guangdong Provincial Service, February 9, 1983). Liaoning has invested in phosphate mining in Hubei and Yunnan in exchange for fertilizer and Sichuan has supplied skilled manpower and technological expertise to Xinjiang (Sichuan Provincial Service, August 19, 1985). But the basic principle underlying these agreements remains that of countertrade. There are cases of provincial export of fertilizers despite widespread excess demand within the province such as in Heilongjiang which exports ammonium bicarbonate to Liaoning, Anhui and Jilin (Heilongjiang Provincial Service, February 27, 1984).

Figure 2 Fertilizer Nutrient Application per Sown Hectare in China, 1983


Heilongjiang
Jilin
Liaoning
Xinjiang
Gansu
Inner Mongolia
Hebei
Beijing = B
Tianjin = T
B
T
Ningxia
Shanxi
Shandong
Qinghai
Shaanxi
Henan
Jiangsu
Tibet
Shanghai
Anhui
Hubei
Sichuan
Zhejiang
Hunan
Jiangxi
Guizhou
Fujian
Taiwan
Yunnan
Guangxi
Guangdong
30-65 kgs/ha
65-90
90-115
114-140
140-165
165-190
190-215

Sources: Zhongguo Guojia Tongjiju (State Statistical Bureau of China), Zhongguo Tongji Nianjian, 1984 (Statistical Yearbook of China, 1984), ((Xianggang: Xianggang Jingji Daobao Shechuban (Hong Kong Economic Reporter Publishing House), 1984)), pp. 141 and 177.

The data for 1981-83 (Table 3) show the inter-provincial pattern as becoming marginally less skewed relative to 1981. 11 of 17 sub-average provinces and only 2 of 12 provinces consuming above the per hectare national average in 1981, exceeded the national *average 1981-83 growth rate*. But 5 of the latter 12 exceeded the *average absolute increment*, compared with only 5 of 17 sub-average provinces, excluding most of the very least intensive consumers. In short the correlation between levels of provincial per hectare application and growth rates is now negative (– 0.453), but the negative association is still weak between levels and growth increments (0.155). This situation will improve in the 1985-1990 period with completion of large scale fertilizer plants in Xinjiang, Qinghai, Ningxia and Shanxi, as well as possible completion in Hubei and Guizhou or Yunnan. The only large scale plant recently completed for an above average consuming province began trial produciton at the end of 1983 in Zhejiang, although there are plans to construct large plants for producing diammonium phosphate in Hebei, Liaoning and Jiangsu and for producing urea on Guangdong's Hainan Island (see below).

TABLE 3.—PROVINCIAL FERTILIZER NUTRIENT APPLICATION PER SOWN HECTARE IN CHINA, 1981—83

Province	Kgs. per sown hectare			Annual average growth rate 1981-83 (percent)	Annual average growth increments 1981-83 (kgs./ha./year)
	1983	1982	1981		
Shanghai [1]	210.8	221.3	224.2	– 3.0	– 6.7
Fujian	196.0	184.3	154.4	12.8	20.8
Liaoning	180.5	167.7	163.3	5.1	8.6
Jiangsu	174.3	170.0	147.7	8.6	13.3
Shandong	172.4	158.9	140.8	10.7	15.8
Beijing [1]	169.2	168.2	156.4	4.0	6.4
Guangdong	166.2	146.7	134.0	11.4	16.1
Zhejiang	151.2	144.6	134.9	5.9	8.2
Hunan	135.0	114.6	106.0	12.9	14.5
Hebei	117.4	102.7	82.7	19.1	17.4
Anhui	115.3	113.5	91.7	12.1	11.8
Henan	115.3	95.3	74.7	24.2	20.3
All China [2]	115.3	104.6	91.4	12.3	12.0
Guangxi	112.4	110.2	92.5	10.2	10.0
Sichuan	111.5	97.7	97.9	6.7	6.8
Hubei	107.7	93.4	78.9	16.8	14.4
Jilin	100.3	89.3	75.9	14.2	11.7
Yunnan	97.3	81.1	64.7	22.6	16.3
Guizhou	89.6	80.8	79.2	6.4	5.2
Jiangxi	85.8	86.6	67.8	12.5	9.0
Qinghai	77.7	83.0	61.7	12.2	8.0
Shaanxi	75.4	66.1	55.2	16.9	10.1
Shanxi	75.3	68.4	66.4	6.5	4.5
Tianjin [1]	65.8	59.0	62.5	2.6	1.7
Tibet	61.1	22.9	9.4	154.9	25.9
Ningxia	60.3	54.6	50.3	9.5	5.0
Xinjiang	58.9	48.4	40.5	20.6	9.2
Gansu	51.4	46.3	37.9	16.5	6.8
Heilongjiang	46.7	42.2	40.8	7.0	3.0
Inner Mongolia	31.1	21.8	17.8	32.2	6.7

[1] Shanghai, Beijing, and Tianjin are municipal areas with considerable vegetable acreage.

[2] These data exclude Taiwan Province.

Sources: *Zhongguo Guojia Tongjiju* [State Statistical Bureau of China (SSB)], *Zhongguo Tongji Nianjian, 1981* [Statistical Yearbook of China, 1981] (Xianggang: Xianggang Jingji Daobao Shechuban [Hong Kong Economic Reporter Publishing House], 1982), p. 184. SSB, Statistical Yearbook of China, 1983 (Hong Kong: Economic Information Agency, 1983), p. 199. Zhongguo Guojia Tongjiju, Zhongguo Tongji Nianjian, 1984 [Statistical Yearbook of China, 1984] (Xianggang: Xianggang Jingji Daobao Schechuban [Hong Kong Economic Reporter Publishing House], 1984), p. 177. The final columns are calculated.

In many cases, the skewed distribution *within* provinces is even more important. "High and stable yield areas," other commodity bases and state farms receive disproportionately high allocations. Wheat, cotton, hemp, tobacco and japonica rice have recently received high priority (even relative to their requirements) while root and tuber crops, though highly fertilizer responsive, as well as several nutritionally important crops like soybeans and peanuts, receive little. Again these priorities reflect state procurement considerations (often reinforced by the price structure for farm goods still determined or heavily influenced by state policy). This is because almost all fertilizer has been allocated by government and the urban food procurement issues, especially in North China and the Northeast, have been a central administrative concern historically.[6] Over time, these priorities have come to conflict with maximization of production, of production value and even of marketings themselves. For some time they have been anathematic to equity considerations.

The principal problem with the allocation system is that it is too closely tied to procurement. Almost all nationally allocated fertilizers and most provincial production is typically provided in exchange for procurement. A portion of provincial production and officially all county level output are normally allocated on a sown area basis. But the proportions allocated for procurement are now so large that county production must be involved. In some provinces the quantities allocated to each unit of land in this way depend upon the crop sown, again with most economic crops and those particular grain crops of greater interest to the state authorities, receiving higher per unit allocations. In many instances there are no allocations to certain poor land grain crops such as roots and tubers, edible beans and several coarse grains. The allocation of some county fertilizer production is sometimes diverted by county officials who use allocations to encourage compliance with various programs such as the birth control campaign. According to one 1983 estimate, 16 different ministries, commissions and bureaus at the national level were involved in activities allocating fertilizer as rewards, exchange items or as incentive. In some provinces and municipalities, there were as many as 30-40 organizations dealing with chemical fertilizers. This system is now in the progress of change with the aim of greater market responsiveness.[7]

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[6] The idea that the procurement issue has historically been at the root of considerable rural policy formulation and resulted in a wide range of otherwise quixotic state initiatives is developed in Bruce Stone, "Relative Foodgrain Prices in the People's Republic of China: The Experience of Extractive Rural Taxation through Low Procurement Prices in a State Grain Market Monopoly," a paper prepared for IFPRI Workshop on Food and Agricultural Price Policy," Elkridge, Maryland, April 29-May 2, 1984. See also Bruce Stone, "Long-term Intersectoral Resource Flows among Countries Undergoing Technical Transformation of Agriculture—the Case of the People's Republic of China" in Tatsuro Yamamoto (ed.), *Proceedings of the Thirty-First International Congress of Human Sciences in Asia and North Africa* (Tokyo-Kyoto, August 31-September 7, 1983), Vol. II (Tokyo: Toho Gakkai [The Institute of Eastern Culture], 1984), especially pp. 790-792. For an excellent regional discussion of foodgrain procurement history, especially for the 1950s, see Kenneth R. Walker, *Food Grain Procurement and Consumption in China* (Cambridge: Cambridge University Press, 1984).

A small portion of nationally and provincially controlled fertilizers are reserved for emergencies or earmarked for distribution to remote or especially impoverished areas.[8] Allocations for the latter purpose are no doubt excellent welfare instruments, but depending upon the type and timing of the disaster in each case, *emergency* allocations of chemical fertilizer may be both poor welfare instruments and poor mechanisms from the standpoint of productive efficiency. On the whole, the allocational system is so skewed toward state farms and high yield market oriented areas that the marginal response ratios on such land have often fallen to between one-third and one-fifteenth of those of medium and low yield land receiving very little fertilizer.[9]

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[7] This includes fertilizer allocations related to procurement under a variety of schemes such as "exchange-purchase," "selling-reward," and "incentive-sales." In the 1950s, almost all fertilizer sales were related to procurement but the system was not instituted officially until 1961. It was established in order to control and recoup the radical declines in area sown with economic crops during the agricultural disasters of 1960-61. With small, county-owned plant development dominating fertilizer production expansion beginning in the late 1960s, the proportion of fertilizer allocations related to procurement declined rapidly. The proportion has risen quickly since the mid-1970s, a trend which has continued at least through 1981, although some provinces have either abolished or tried to check the growth of such allocations. According to one CAAS study, procurement-related allocations increased from 29.7 percent in 1973 to 51.5 percent in 1979 (Guo Jinru and Lin Bao, "A Study of China's Chemical Fertilizer Problems," *Turang Tongbao* [Soils Bulletin], No. 2 (April 6), 1983, pp. 25-27). According to data for 27 provinces (excluding Heilongjiang and one other), procurement-related distribution was 8.8 million tons in 1980 (or 69.6 percent of 1980 application). The proportion for Heilongjiang is no doubt higher than the national average. The following year, Yunnan abolished the system but the total for only 26 provinces came to 9.8 million tons (or 73.4 percent of 1981 application in *all* provinces). For the breakdown in allocation among sales of various crops and produce, see text. It is clear, however, that rates of exchange vary remarkably from province to province. Although it may have changed in 1985, the national standard for cotton has been 42 kgs. per 50 kgs. of product sold, but Hebei, Shanxi and Shandong allocate 50 kgs. of fertilizer and in some areas of Sichuan, the figure has been as high as 125 kgs. (Liu Beiyang and Xie Hongli, "Problems of Present Incentive Sale of Chemical Fertilizers for Agricultural Production," *Nongye Jingji Wenti* [Problems in Agricultural Economics], no. 10, 1982, p. 54). According to this source, 20 different administrative bodies *at the national level* share the responsibility for fertilizer incentive sales. There are several indications that distortion of fertilizer allocations for political purposes is widespread. It may also be intensive. Ed Friedman estimates that fully half of fertilizer distributed in Raoyang County, Hebei was allocated on the basis of political criteria (correspondence from Dr. Ed Friedman, Univ. of Wisconsin, June 26, 1985).

[8] In Jiangsu Province for example this figure amounts to 10-15 percent of fertilizers going through the system and included emergency allocations for flooded areas, areas that have failed to receive their allocated fertilizers and low application areas. Thus in years when there is little flooding, a large portion of these fertilizers can still end up fulfilling exchange obligations. The most aggressive of these efforts appears to be in Ningxia where use has been extremely concentrated. Beginning in 1985 no less than 30 percent of the regional total is to be allocated to poor mountainous areas and the transport charges will continue to be subsidized ("Regional CPC Committee and Government Formulate New Regulations on Relaxing Policies in Mountainous Areas of Southern Ningxia," *Ningxia Ribao* [Ningxia Daily], December 27, 1984, p. 1).

[9] According to one source, in high yield, high application grain areas the marginal response ratio is 0.5-1.0:1, but in low yield areas it is 4-5:1 (or 2.5-5.0:1 and 20-25:1 on a nutrient weight basis) (Zhang Tong, "An Analysis of the Relationship Between the Amount of Fertilizer Applied and Grain Production," *Nongye Jishu Jingji* [Agro-Technical Economics], No. 5, May 1983, pp. 11-14). Unfortunately, low application of chemical fertilizers is generally correlated with low intensity of organic manure use (Stone, "An Examination of the Prospects for Demand for Chemical Fertilizers in the PRC," op. cit., pp. 53-55 and Table B4). The most obvious yield increases with supplemental application on low and medium yield land has been on late rice crops in double cropping areas where the marginal response ratio has been estimated to be 24.3:1, although this aggregate calculation ignores influence of other variables and most notably may involve some weather bias. Of the phenomenal 17.64 million ton increase in Chinese paddy production in 1982, almost half (8.5 million tons) was associated with increased yields on late paddy in low and medium yield areas receiving special fertilizer supplements (Zhou Xiao, "Improvement of Agricultural Production Conditions," *Tongji*, No. 4, 1984). Considerable data on 1981 response rates for various crops and types of fertilizers are available in Zhongguo Nongkeyuan Tufeisuo Huafei Shiying Wangzu [Chinese Agricultural Science Academy, Soil and Fertilizer In-

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This situation has a strong historical basis. Today allocation of fertilizer is organized via a planning process involving the provincial agricultural and planning departments and the ministries at the national level, while the Agricultural Means of Production Corporation (under the Ministry of Commerce) manages distribution of fertilizer, farm chemicals, simple farm tools and the like. Foodgrain procurement is conducted separately by grain stations and state purchases of most other farm goods are the province of the State Supply and Marketing Cooperatives which also handle supplies of various consumer goods sold in rural areas. But in the 1950s, fertilizer distribution and allocation were entirely handled by the State Supply and Marketing Cooperatives whose most difficult task was the procurement of large volumes of agricultural products at low prices. Chemical fertilizer allocation in exchange for marketings, primarily economic crops, became an expendient to assist in resolving the difficult procurement problem.

In the early years, this system probably exhibited several efficiency properties. Not only did it assist in encouraging sales of farm goods, but it probably led to application on crops in greatest state (excess) demand, and under conditions leading to high marginal response ratios since applied volumes of chemical fertilizers were very low or non-existent throughout China, and because purchase efforts were originally concentrated in higher yield areas most often characterized by relatively good soil and water control and generally better farm management.

Nevertheless, the government still had a difficult time with procurement in the 1950s. This was partly because the prices the government offered were too low and partly because yields (although growing rather quickly) had not increased enough to satisfy the government's needs and still leave some of the increment as incentive for farmers. Farmers were organized into communes and the government became the monopoly purchaser of grain and cotton crops, both of which facilitated their purchase at low prices. Agricultural taxes in the form of crops had to be paid to the government and in addition, a compulsory quota of basic farm produce from each piece of land had to be sold to the state at a very low price.

All of this was insufficient, however, and the government was aware that a special effort would have to be made to increase crop yields since virtually all of China's readily usable farmlands were already under cultivation. With the assistance of the Soviet Union, China began to build medium size chemical fertilizer plants in the 1950s to supplement output from the two existing factories, but rapid development did not occur until the mid-1960s when a program of constructing much smaller nitrogen fertilizer plants got underway.[10]

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stitute. Chemical Fertilizer Trial Network] "Improvement in Production Efficiency, Suitability, Applied Quantities and Proportions of Our Country's Nitrogen, Phosphate and Potash Fertilizers." *Turang Feiliao* [Soil Fertility], No. 6, 1983, pp. 13-17.

[10] Bruce Stone, "China's 1985 Foodgrain Production Target," op. cit., pp. 122-123; Stone, "Fertilizer Marketing and Allocation in China," op. cit., pp. A1-A11; Stone, "Relative Foodgrain Prices in the PRC," op. cit. For a discussion of the early history of PRC fertilizer development, see Jung-chao Liu, *China's Fertilizer Economy* (Chicago: Aldine, 1970). Another excellent secondary source is James A. Kilpatrick, "The Use of Fertilizer in China's Agricultural Development," doctoral dissertation in economics, University of Michigan, Ann Arbor, 1979.

During the agricultural failures of the post Great Leap Forward period (1959–61) fertilizer allocation shifted sharply toward grain crops. This was so not only because the state was having a difficult time procuring adequate quantities of the most necessary commodities (foodgrains) for urban areas and the army, despite a massive increase in imports, but because famine was so widespread that farmers diverted all available resources toward growing sufficient basic foods. Considerable area previously sown with economic crops was reallocated to grains and potatoes, but the 1957–58 level of foodgrain production was not surpassed until 1966. Although fertilizer allocation in exchange for economic crops was resumed, most of the incremental allocation in the 1960s and early 1970s continued to go to foodgrains. The result was that as late as the 1975–78 period, the grain crops in which the state was most interested (rice, wheat and maize) received more fertilizer per hectare than all but the very most important crops needed by industry, and the intensity of application on most of even these industrial crops did not reflect their economic importance owing to modest allocations reinforced by low prices (Table 4).

TABLE 4.—RELATIVE INTENSITY OF CHEMICAL FERTILIZER APPLICATION EXPENDITURES AMONG CROPS, 1975–78

	1975	1976	1977	1978
Wheat	100	100	100	100
Rice (avg.)	126.8	109.6	124.5	116.3
Early rice	103.7	96.5	95.8	98.8
Late rice	52.7	113.3	88.8	71.0
Japonica	224.4	118.9	188.8	178.9
Glutinous rice	10.7	124.9	65.3	97.1
Maize	117.1	134.3	90.3	111.5
Sorghum	40.2	4.9	72.5	59.6
Millet	25.8	11.2	59.2	61.1
Soybeans	5.9	8.4	15.7	20.0
Sweet potatoes	(1)	(1)	18.2	19.7
Peanuts	29.5	50.3	41.6	22.6
Rape	87.1	186.5	45.7	74.2
Sesame	17.8	3.7	12.7	5.4
Cotton	153.7	172.0	128.3	(1)
Tobacco	(1)	(1)	124.7	(1)
Flue-cured tobacco	169.8	152.2	(1)	(1)
Bast fibers	142.7	148.0	104.6	(1)
Jute	113.9	39.4	82.5	(1)
Hemp	147.6	116.3	110.6	(1)
Kenaf	184.4	257.3	157.7	(1)
Ramie	124.9	179.5	67.4	(1)
Wheat (1975 wheat equals 100)	100.0	104.6	128.5	143.7
Average application (in quantity terms) for all crops (1975 equals 100)	100.0	108.4	120.9	164.0

[1] Not available.

Notes. These index numbers (relative to current year wheat expenditures) are derived from survey data listing average expenditures per mu on fertilizer, broken down for most years as expenditues on "all fertilizer" and on "chemical fertilizer only." Expenditures on wheat rose over the period, although somewhat less than did average chemical fertilizer quantity application per mu, both of which are indexed to 1975 at the botton. These data should be used with caution. The sample is biased toward more productive locations, since average yields among surveyed locations exceeded the national averages by around 10–30 percent. This is particularly distorting for the poor land crops, since diffusion of fertilizer in high intensity application areas to these crops will considerably exceed that on more typical poor lands. The expenditure data are in value terms so they are imperfect proxies for quantity comparisons. Farmgate prices of centrally distributed fertilizers remained constant and uniform over the period, but prices of locally produced fertilizers including most ammonium bicarbonate, single superphosphate and calcium magnesium phosphate vary considerably among locations and over time, and were dominant among applied fertilizers during the period. Prices for these products tend to be higher in the poorer, less developed provinces and locations. The data do not cover a number of important crops such as white potatoes, which are very fertilizer responsive but receive little application, edible bean crops, which are highly nutritious but receive little, vegetables and sugar cane and sugar beets which are highly responsive, of high value and, especially now, receive a good deal of fertilizer, and tree crops which receive some. Per hectare application on mid-season rice, excluded here, exceeds that on wheat. Since 1978, allocations have shifted sharply toward economic crops, especially cotton. Application proportions have also shifted in that direction but less sharply.

The data presented in this table are roughly mirrored by the Handbook survey material for crop-wise expenditures for all fertilizers (including organic manures) although rice (excepting mid-season rice), sweet potatoes and some of the economic crops fare somewhat better. These data are not presented here since, in addition to the problems listed for this table, they are strongly influenced by sharply fluctuating prices for organic materials.

Sources: Nongye Jishu Jingji Shouce Bienweihui [Agricultural Technical and Economic Handbook Editorial Committee] Nongye Jishu Jingji Shouce [Agricultural Technical and Economic Handbook], (Beijing: Nongye Chubanshe [Agricultural Publishing House], 1983), pp. 640–666, especially 658, 660, 662 and 664. Aggregate application is from Table 1 and sown area data from State Statistical Bureau, Statistical Yearbook of China—1983, op. cit., p. 154.

The level of foodgrain imports remained at the high levels reached in the early 1960s. With a large urban population and with ambitious stockpiling plans born of the recent experience with widespread famine, state procurement demands had increased, while the existence of a larger rural population coupled with the same localized motivation to store grain and the seven year hiatus in aggregate grain production progress, combined to keep the marketed ratios falling.[11]

By 1962, staff at the Nanjing Chemical Fertilizer Company had developed a cheap process of producing ammonium bicarbonate and by 1966, 18 percent of China's nitrogen fertilizer was from small factories producing synthetic ammonia and converting it, usually, to ammonium bicarbonate. By 1978, there were 1,533 such plants located in 70 percent of China's 2,000 counties, which produced 70 percent of the nation's nitrogen fertilizer (Table 5).

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[11] The marketed ratio for foodgrains fell from an average of 28.0 percent (1952-60) to 20.5 percent (1961-70) to 17.5 percent (1971-80) (State Statistical Bureau, *Statistical Yearbook of China, 1983*, op. cit., pp. 158, 162 and 389-390.)

TABLE 5.—DEVELOPMENT OF SMALL FERTILIZER PLANTS, 1953–84

	Nitrogen plant development						Phosphate plant development		Total small plant development	
	Synthetic ammonia production in small plants (1,000 metric tons)	Ammonium bicarbonate production in small plants (1,000 metric tons)	Nitrogen fertilizer production in small plants		Index of nitrogen fertilizer production capacity in small plants [1] [2]	Number of small nitrogen plants [2]	Phosphate fertilizer production in small plants as percent of total phosphate production	Number of small phosphate plants	Percent of total fertilizer production	Number of small plants [2]
			As percentage of total nitrogen production	Index of nitrogen fertilizer production in small plants [1]						
1953								0		
1954							100	1		
1955							100			
1956							100			
1957							100			
1958	0.8							6		
1959										
1960										
1961			2	6						
1962										
1963		10				[5] 30				
1964			10						30	
1965			12.4	100	100	40		100		140
1966			18	165		90				
1967						[6] >100				
1968			[4] 33		600					
1969			[4] 43		600					
1970			40							
1971			43	500	[7] 780	500			60	
1972			53	750		700		600	60	1,300
1973			54	1,000		800	[11] 75	600		1,400
1974			45			1,000		500		1,500
1975			58	1,900		1,190	[12] 67		69	
1976			60		[8] 900	[9] 1,260		[8] 800		[8] 2,000
1977										[13]
1978	6,585	[3] 17,287	70							[13]
1979	7,310	[3] 20,373	55			[10] 1,533		800		
1980	8,200	[3] 24,467	55				90			

TABLE 5.—DEVELOPMENT OF SMALL FERTILIZER PLANTS, 1953–84—Continued

	Nitrogen plant development						Phosphate plant development		Total small plant development	
	Synthetic ammonia production in small plants (1,000 metric tons)	Ammonium bicarbonate production in small plants (1,000 metric tons)	Nitrogen fertilizer production in small plants: As percentage of total nitrogen production	Nitrogen fertilizer production in small plants: Index of nitrogen fertilizer production in small plants [1]	Index of nitrogen fertilizer production capacity in small plants [1] [2]	Number of small nitrogen plants [2]	Phosphate fertilizer production in small plants as percent of total phosphate production	Number of small phosphate plants	Percent of total fertilizer production	Number of small plants [2]
1981	7,800	[3] 24,195	53			1,300	90			2,200
1982		[3] 26,770	54.9			1,300		800		2,100
1983			>50			1,250				
1984						[8] >1,200				

The ammonium bicarbonate figures are in gross weight equivalent of an equal nutrient weight of ammonium sulfate Ammonium bicarbonate is 17.5 percent nitrogen Ammonium sulfate is 20–21 percent nitrogen

[1] The indexes were calculated with 1965 = 100

[2] These are the number of plants in operation and production capacity at the beginning of the indicated year, unless otherwise specified

[3] These figures exclude other nitrogen fertilizers produced in small plants, most notably aqueous ammonia Final output of aqueous ammonia (on a nutrient basis) declined from 39.4 percent of that of finished ammonium bicarbonate in 1978, to 27.8 percent (1979), 17.7 percent (1980) and 12.2 percent (1981) Such a rapid implied decline is not necessarily unreasonable since the effort to close down the least efficient small plants may have concentrated on aqueous ammonia facilities which do not then convert the ammonia to ammonium bicarbonate, which is less volatile and easier to handle and transport Today, small plants produce minor quantities of ammonium sulfate, ammonium nitrate, urea, ammonium chloride, and several compound fertilizers

[4] These figures refer to small plant production capacity as percentages of total nitrogen production capacity The 1969 figure may refer to 1969 or to the first three or four months of 1970

[5] "Several tens" of small synthetic ammonia plants were constructed from 1958–61 But it appears that most of those particularly inefficient plants producing an extremely volatile product may have been closed by 1963

[6] "More than 100" was reported on June 15, 1966

[7] Capacity increased more than 30 percent in 1970 The index number was calculated using the 1968 index estimate since one for 1969 was not available The number is probably an underestimate since chemical fertilizer production increased substantially in 1970 over 1969 and the small-plant share of nitrogen remained about the same

[8] These figures refer to midyear 1975 and midyear 1984, respectively

[9] This estimated figure refers to the stock at the end of April 1976

[10] This figure may apply to the stock of operating small plants any time during 1978 It probably represents the high watermark of plants in operation toward the end of the year and is associated with the accounting loss of 610 million yuan in 1978

[11] This figure refers to the first eight months of 1973 production

[12] This figure refers to the first six months of 1975 production

[13] More than 100 large and small chemical fertilizer plants were built and put into operation in 1977 Most of these, of course, were small

There were a variety of problems with the small plants[12] but along with irrigation development, most notably reservoir and tubewell construction in North China, and with the help of the Academy of Agricultural Sciences which developed high-yielding seed varieties, output from the small plants was instrumental in providing a respectable growth in grain production, if not for economic crops. The growth in fertilizer consumption facilitated by small plant development was not only unusually rapid compared with other historical cases, but was done with a very modest commitment of central and provincial government funds since, to a large extent, most of the small plants were financed locally.

Although the massive development of small scale county plants accelerated the fertilizer diffusion process, allocations throughout the 1960s were still concentrated in high yield areas, especially those adjacent to cities. That is because the most aggressive and technically superior small plant development occurred in high yield provinces like Zhejiang or adjacent to industrially and managerially efficient cities like Shanghai. Continued concentration on high yield areas despite much larger applied volumes was probably not yet inefficient. Seed technical developments in the 1960s and early 1970s had shifted upward the production functions of these advanced areas characterized by good water control and skillful farming. This prevented a more rapid decline in marginal response rates as application levels increased.

But partly because control of the small plants and their products was more decentralized among a large number of county governments, the national and provincial governments were having a hard time funnelling enough fertilizer into specific areas which were eating well enough to sell most of the incremental produce to the state. The quantities of fertilizer manufactured were still insufficient, especially given the low quality of product. This meant that the proportion of farm production sold to the state was still declining in the 1970s.

To resolve this situation, the central government made massive commitments beginning in 1973-74 to develop agriculture and farm produce marketing via the chemical fertilizer industry, by signing agreements to import 13 large scale complexes which would produce synthetic ammonia and then convert it to urea, a high quality nitrogen fertilizer product. The decision may have been precipitated or intensified by rapidly rising international prices for fertilizer and food, brought on by the oil crisis and the entry of the Soviet Union as a major purchaser in the international grain market, but the fundamental causes are endogenous to China.

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[12] The plants originally used coke for energy and feedstock, since coke was provided as a byproduct of small scale steel plants. But when the latter were correctly perceived as highly uneconomic, small plants were converted to run on anthracite coal or natural gas. There were many problems with these plants. The investment costs per plant were in small lumps, but high when calculated in terms of completed product. Similarly, feedstock consumption per plant was minor, but when calculated per ton of nitrogen produced, it was 2-3 times that of the medium scale Chinese plants and more than 4 times that of efficient large scale plants in developed countries. The product itself was more volatile than standard nitrogen fertilizers like urea and ammonium sulfate (although less volatile than manures), and with poor packaging and the usual inefficient application methods employed by Chinese farmers, much of the nitrogen evaporated before it could be absorbed by crops. For details, see Stone, "Fertilizer Marketing and Allocation in China," op. cit., pp. C4-C17. Principal secondary works discussing these plants include American Rural Industry Delegation, *Rural Small-Scale Industry in the People's Republic of China* (Berkeley: University of California Press, 1977); Jon Sigurdson, *Rural Industrialization in China* (Cambridge: Harvard University Press, 1977); and Christine Wong, "Rural Industrialization in China: Development of the 'Five Small Industries,'" doctoral dissertation in economics, University of California at Berkeley, 1979.

Completion of construction and capacity utilization of these plants accelerated in the later 1970s and as of 1982, the large complexes were running at an average of more than 87 percent capacity. Assisted by continued rapid development in the small plant sector, and an expansion of fertilizer imports, production in these complexes is responsible for the most rapid growth in fertilizer application on a comparable scale anywhere in the world. Production of nitrogen fertilizers grew from 3.8 million tons in 1976 to 12.3 million tons in 1984, while application expanded from 4.47 million tons to around 13 million tons (Tables 2 and 6).

TABLE 6.—PRODUCTION OF MANUFACTURED FERTILIZERS IN CHINA, 1949–84

[Thousand metric tons of nutrients]

Year	All fertilizers	Nitrogen fertilizers	Phosphate fertilizers	Potash fertilizers
1949	6	6		
1950	15	15		
1951	28	28		
1952	39	39		
1953	50	50		
1954	67	67		
1955	79	78	1	
1956	111	97	14	
1957	151	129	22	
1958	194	151	42	
1959	266	164	90	12.5
1960	405	196	193	n.a.
1961	297	173	122	n.a.
1962	464	338	126	n.a.
1963	648	458	189	n.a.
1964	1,008	675	332	n.a.
1965	1,726	1,037	688	1
1966	2,409	1,461	946	n.a.
1967	1,641	1,015	622	n.a.
1968	1,109	684	422	n.a.
1969	1,749	1,023	723	n.a.
1970	2,435	1,523	907	5
1971	2,994	1,904	1,078	n.a.
1972	3,701	2,444	1,249	n.a.
1973	4,952	2,996	1,589	n.a
1974	4,222	2,827	1,390	n.a.
1975	5,247	3,709	1,531	8
1976	5,244	3,815	1,418	n.a.
1977	7,238	5,509	1,708	n.a.
1978	8,693	7,639	1,033	20
1979	10,654	8,821	1,817	16
1980	12,321	9,993	2,308	20
1981	12,390	9,857	2,508	24
1982	12,781	10,219	2,537	25
1983	13,789	11,094	2,666	29
1984	14,820	12,260	2,520	40

Notes: n.a. indicates the data is unavailable but probably non-zero, with the possible exception of the early 1960s for potash fertilizers. Very little or no phosphate fertilizer was produced before 1955, or potash before 1959.

Source: Bruce Stone, "An Examination of the Prospects for Demand for Chemical Fertilizers in the People's Republic of China," op cit., Table A2. 1984 data have been added from State Statistical Bureau "Communiqué on Fulfillment of China's 1984 Economic and Social Development Plan" (March 9, 1985).

Since these plants were under central and provincial control and because the generation of adequate marketings was the focal problem, their production was successfully funneled into market surplus areas that could afford to sell grain rather than consume it locally, or were producing enough food to allocate land away from food crops to economic crops. Almost all of this fertilizer was allocated in direct exchange for the sale of farm goods. By 1981, some 73.4 percent of China's fertilizer was allocated in this fashion. According to one study, 30 percent of what was allocated was for cotton, 19 percent for grains, 15 percent for oil crops, 8 percent for animal products, 4 percent for fiber crops, 7 percent for sugar crops, 3 percent each for tobacco and mulberry trees (silkworm habitat), 2 percent for tea and 9 percent for miscellaneous items including fruit and (primarily) vegetables.[13] This pattern of allocation has been instrumental in achieving rapid growth in production in each of these categories during the last several years.

Since the recipient areas were generally fairly well-off, most of the incremental production from the extra fertilizer allocations was sold to the state (or devoted to animal husbandry which resulted in sale of livestock products). But these types of areas represent no more than around a third of China's farmlands. This means that allocation has been highly concentrated within these areas, especially so on particular crops, like cotton.

Although such allocations have resulted in considerable growth, heavier application on the most intensively fertilized crops in the principal consuming areas will have much less effect. By the late 1970s, the volumes of fertilizer applied in such areas were so great that the marginal response ratio of nitrogen on high yield rice paddy, for example, had fallen to between 2½ and 5 to one in many areas and in some places, there was no marginal response. By contrast, the ratios on low and medium yield land currently receiving little fertilizer, although poorer in ultimate potential, were often in the range of 15-25. In addition, the latter areas are generally characterized by varying degrees of malnutrition or at least a much lower standard of living than is enjoyed in rural high yield, suburban and urban areas. Although some efforts have been made to allocate more fertilizer in medium and low yield areas, the greatest increments in recent years have been allocated in exchange for economic crop marketings and secondarily, for grain crops in high yield areas.[14]

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[13] Liu Beiyang and Xie Hongli, "Problems of Present Incentive Sale of Chemical Fertilizers for Agricultural Production," op. cit.

[14] It is important to note that allocations in exchange for procurement of particular economic crops do not guarantee application to those crops. Some of the fertilizer is diverted to grain crops. Ministry of Agriculture personnel estimate that ⅔ of China's manufactured fertilizers are used on grain crops. For example in Shandong, although almost all cotton is sold to the state by farmers receiving a kilogram of fertilizer for each kilogram of cotton (see footnote no. 7), 1981 application to cotton in the province was 600 kilograms per hectare of presumably standard fertilizer or about 120 kilograms of nutrients (Yu Renbo and Li Gang, "Proportional Development of Grain and Cotton Production in Shandong Province," *Nongye Jishu Jingji* [Agro-technical Economics], no. 4, 1983, p. 18. Cotton yields in Shandong averaged 728 kilograms per hectare in 1980 and 720 in 1981 (He Gang et al. (eds.), *Zhongguo Nongye Nianjian, 1982*, op. cit., p. 39 and Luo Hanxian et al. (eds.), *Zhongguo Nongye Nianjian, 1981* [Agricultural Yearbook of China, 1981] (Beijing: Nongye Chubanshe [Agricultural Publishing House], 1981, p. 32). Locations of the poorest counties with per capita distributed income less than 40 or 50 yuan (around ¼ of China's counties in 1977) for 1977-79 appear in Nongyebu Renmin Gongshe Guanliju [Ministry

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This situation gave rise to very profitable opportunities for resale of chemical fertilizers by farmers or local officials, and raised the potential gains from illegal diversion of fertilizers at higher levels.[15] It also generated some rational and responsible desire on the part of certain county and provincial officials to divert fertilizer away from exchange and award sales in the interests of equity and in achieving higher overall production. Since the nutrient mix of fertilizers controlled by particular counties and provinces is often inoptimal, trading occurs and is clearly increasing. But this barter mechanism is a clumsy, bureaucratic one, and the amount of such trade is still quite minor.[16]

Why are not smaller proportions of fertilizer allocated for award sales and in direct exchange for procurement? This would leave more fertilizer to allocate to the medium and low yield areas characterized by higher marginal response ratios as well as reduce superfluous transport burdens and losses with reshipments. There appear to be several answers.

First, the procurement problem would at least be complicated by such a move. Farmers in medium and low yield areas are often operating at such low consumption levels that it would be difficult to justify increasing grain procurement from them, or encouraging the partial allocation of their lands to the production of economic crops rather than grains. Even if increased fertilizer sales in such areas were directly tied to procurement, acquiring small quantities of produce from a larger and more remote number of localities as well as the current market-oriented areas would not only be more complicated, but would involve greater administrative and transport costs.

Second, the high yield areas and suburban populations, like the urban populations, are constituencies with substantial political clout and thus concessions already granted them can be withdrawn only with considerable difficulty. Finally, the high yield areas, with their greater access to cash and greater influence, are more capa-

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of Agriculture, People's Commune Managment Bureau], "The Situation in the Nation's Poor Counties," *Xinhua Yuebao* [New China Monthly], vol. 2 (February), 1981, pp. 117-120. An excellent discussion of these and other data appear in E.B. Vermeer, "Income Differentials in China," *The China Quarterly*, vol. 89 (March), 1981, pp. 1-33. See also Nicholas R. Lardy, *Agriculture in China's Modern Economic Development* (Cambridge: Cambridge University Press, 1983), pp. 146-189. Allocations in exchange for cotton must now be declining as success of cotton production increase policies resulted in immense stocks of unsold output. At any rate, consequent downward adjustments in cotton prices and purchases have contributed to temporary fertilizer inventory build-ups and import cutbacks in 1985.

[15] "A Few Questions Concerning the Current Chemical Fertilizer Supply," *Zhongguo Nongmin Bao* [Farmers Journal of China], August 11, 1983, p. 1. "Correct Unhealthy Tendencies of Chemical Fertilizer Supply," *Xinhua Ribao* [New China Daily], July 14, 1983, p. 4; "No Hoarding of Chemical Fertilizer for Private Sharing Allowed," *Sichuan Ribao* [Sichuan Daily], July 15, 1983, p. 1; "Urgent Need to Correct Chemical Fertilizer Distribution," *Shanxi Ribao* [Shanxi Daily], August 28, 1983, p. 1; "Why Are Our Province's Chemical Fertilizers Sold to the Outside," *Hebei Ribao* [Hebei Daily], October 21, 1982, p. 2. The latter source gave a black market price for urea of 800 yuan per ton, 78 percent above the official price. Hunan Provincial Service (Changsha), May 11, 1980 cited 720 yuan per ton. These large price differentials emphasize the high marginal response rates of the allocationally disenfranchised as well as the steep incentive structure of prices favoring dynamic areas which was reduced only in 1985; they also suggest that the black market was not so dominant as to swamp the formal allocation process. But illegal diversion of fertilizers through various channels has been regarded as sufficiently important for the State Council and the Disciplinary Examination Committee of the Chinese Communist Party Central Committee to issue a "Circular on Resolutely Stopping Illegal, Undisciplined Activities in the Supply of the Agricultural Means of Production" (*Zhongguo Nongmin Bao*, October 16, 1983, p. 1).

[16] See Footnote no. 5

ble of manipulating the distribution system in their favor than are more remote locations, were they denied access to fertilizer, the marginal application of which had previously proved profitable to them.

Some provincial planning departments that have recognized the problem have been successful in diverting fertilizer to medium and low yield areas. But these adjustments have generally been quite marginal relative to those necessary for equating marginal yield differentials, and the process of diverting increments is described as becoming more difficult: future additional diversion would have to come primarily from surplus output when it could be generated above production plan levels. This suggests that the scope for increasing yields from the existing aggregate level of fertilizer use (by merely shifting allocations) may be more practically limited than it appears from a comparison of marginal response ratios.[17]

A more auspicious sign is that roughly 8 percent of China's high quality fertilizer (perhaps 3 percent of total application) was imported by provinces outside the national plan, often directly by provincial trading companies, but now even including some of Sinochem's own purchases. These fertilizers are sold at substantially higher prices and reflect the eagerness with which farmers have been purchasing high grade fertilizers. It is not yet clear, however, the extent to which these imports directly or indirectly increased application in low and medium yield areas.[18]

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[17] In Sichuan Province, 75 percent of chemical fertilizers were allocated in exchange for procurement in 1980, but officials have been able to cut the proportion slightly over the past three years although such adjustments were described as becoming more difficult. Some of this wedge is being allocated to low and medium yield areas. Nevertheless, the total standard weight quantities allocated to such areas are still quite low:

1980—110,000 tons (1.9 percent of total);
1981—140,000 tons (2.5 percent);
1982—200,000 tons (3.4 percent);
1983—260,000 tons (4.2 percent).

A portion of these figures may be from "emergency reserves." According to calculations based on data for Sichuan in 1983, average fertilizer application rates on high yield land (one-third of the total) are roughly 46 times those on medium and low yield land taken as a group. Bureau of Agriculture officials indicated that average nitrogen application on Sichuan's medium and low yield lands is around 15 kgs. per hectare or around 3 kgs. on a nutrient weight basis. (Bruce Stone, "Fertilizer Marketing and Allocation in China," p. A10). In 1982, there was a one-time special chemical fertilizer supplement to low and medium yield land totalling 420,000 tons of nutrients, or 2.8 percent of all application in that year (Zhou Xiao, "Some Aspects in the Improvement of Our Country's Agricultural Production Conditions," *Tongji* [Statistics], no. 4 [April 17], 1984).

[18] Established in 1954, Sinochem handles most of China's imports and is controlled by the Ministry of Trade and External Relations. The fertilizer is sold to the Agricultural Means of Production Corporation (under the Ministry of Commerce) which distributes it throughout China at uniform prices, according to the national plan. Fertilizer imported outside of the state plan is discussed in "A Few Questions Concerning the Current Chemical Fertilizer Supply," *Zhongguo Nongmin Bao* [Farmers' Journal of China], August 11, 1983, p. 1. The author was a representative of the Agricultural Data Bureau of the Ministry of Commerce. See also Stone, "Fertilizer Allocation and Marketing in China," op. cit., pp. A5–A8. Several articles have linked increased peasant demand for fertilizers to the institution of the production responsibility system, including *Zhongguo Nongmin Bao*, October 16, 1983, p. 1, which discussed activities of the National Working Conference on Chemical Fertilizer Management (October 12, 1983). Policy changes undertaken in 1984 have boosted the autonomy of the provincial trading companies relative to Sinochem in a gradual transition toward making the system more user responsive. Retrenchment in 1985 recovering much of Sinochem's effective control may have been related to foreign exchange concerns, temporary inventory buildups of domestically produced fertilizer and particularly low fertilizer prices on the international market.

DEVELOPMENT OF THE MARKET FOR PHOSPHATES, POTASH AND TRACE ELEMENTS

Another reason for the low marginal response to nitrogen in high yield areas, is that most of the effort to develop the chemical fertilizer industry has been focused on nitrogen. When so much is concentrated on a particular crop, the marginal response ratio may drop sooner because the provision of other crop nutrients has become a constraint. China has tradtionally relied on organic manures for the provision of these other nutrients, since, unlike nitrogen, they do not evaporate. However, when land is intensively cultivated year after year with fertilizer responsive crops and varieties, inability to rapidly increase organic manure application means that the soil is eventually depleted, although at a slower rate than for nitrogen.

During the 1930s, an estimated 38 percent of China's farmland was deficient in phosphates and 12 percent was deficient in potash. Deficiency estimates for the 1950s varied from 40 to 55 percent for phosphates and from 15 to 24 percent for potash. Recently the Chinese Academy of Agricultural Sciences has estimated that 2/3 of China's farmland is deficient in phosphates and around 1/5 is deficient in potash. In addition, studies revealing deficiencies of minor nutrients such as zinc, boron, manganese, copper and molybdenum have begun to be conducted in some areas.[19] These deficiencies, especially for potash and trace elements, are concentrated in high yield areas and inhibit the crop response to nitrogen. With alleviation of these constraints, even the high application areas should be able to productively absorb much more nitrogen.

Production of phosphate fertilizers actually began in the 1950s at the Nanjing Chemical Industry Company. By the 1960s, a variety of medium to low quality fertilizers were produced. Chief among them were calcium (single) superphosphate and calcium magnesium phosphate which comprise the bulk of current production. Other products were also applied such as Thomas phosphate (which is little more than basic slag from the steel industry), and ground phosphate rock.

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[19] The historical survey evidence and acute shortages are discussed in Bruce Stone, "China's 1985 Foodgrain Production Target," pp. 168-171; Zhang Tong, "An Analysis of the Relationship Between the Amount of Fertilizer Applied and Grain Production," *Nongye Jishu Jingji*, No. 5, May 1983), pp. 11-14. By 1978, chronic potassium deficiencies had been detected among the whitish soils of southern Jiangsu and the bleached sandy brown soils of northern Jiangsu, while the necessity was already recognized of applying potassium to the fertile soils of the Lake Tai area, where application of manufactured nitrogen and phosphates was high (Zhang Xiaopu et al., "The Supply of Soil Potassium and the Effect of Potassium Fertilizer on Crop Response in Jiangsu Province," *Turang Xuebao* [Journal of Soil Studies], No. 1, February 1978). Acute shortage of potassium was demonstrated by a recent study in the Yangtze Delta (Thomas B. Wiens, "The Limits to Agricultural Intensification: The Suzhou Experience," U.S. Congress Joint Economic Committee (ed.), *China Under the Four Modernizations*, part 1 (Washington: U.S. Government Printing Office, 1982, pp. 462-474). Similar results for the Lake Dongting district in Hunan appeared in 1983 (Lu Jixi, "Making Rational Use of Fertilizers—A Preliminary Study," Nongye Jishu Jingji, No. 4, 1983, p. 34). Lack of trace elements, especially zinc and boron, but including manganese and molybdenum, have been indicated by studies in Shanghai and Jiangsu (Wu Zhenqi, Kuang Anqi, Yao Naihua and Yong Yongqing, "Preliminary Study of the Availability of Boron and Zinc in Soils of Shanghai," *Turang Xuebao*, No. 4, 1979; Liu Zheng, Zhu Qiqing, Han Yuqing and Tang Lihua, "Status of Microelements of Soils and the Crop Growth in Xuzhou and Huaiyin Districts of Jiangsu," *Turang Xuebao*, No. 3, 1979). By adding boron to soil of experimental rape and cotton plots and zinc to maize fields and rice paddies, local farmers in Sichuan have increased yields by up to 16 percent according to studies conducted by the Chengdu Institute of Georgraphy (CAS) since 1977 ("Fertilizing with Trace Elements," *Beijing Review*, May 4, 1981, p. 31). The success of additional tests for these elements and crops as well as for molybdenum on peanut crops appear in Zhou Xiao, "Improvement of Agricultural Production Conditions," *Tongji*, No. 4, 1984. Nationwide maps indicating general geographical dispersion of trace element deficiencies and crop response to trace element application are published in Liu Zheng, Zhu Qiqing, Tang Lihua, Xu Rongxiang and Yen Chuliang, "Geographical Distribution of Trace Elements—Deficient Soils in China," *Turang Xuebao*, No. 3, August, 1982; and Liu Zheng, Zhu Qiqing and Tong Lihua, "Boron-Deficient Soils and Their Distribution in China," No. 3, 1980.

Application of superphosphate and calcium magnesium phosphate has the advantage of treating or retarding the appearance of sulfur and magnesium deficiencies which have plagued even modest intensity fertilizer users, but there are several problems with even the best of these products. They are bulky: the percentage of phosphate is low. Only about 15 percent of even this phosphate can be readily absorbed by plant root systems, although some of the unabsorbed portions can build up in the soil, slowly ionize, and be gradually absorbed over future years. However, in some areas, the unabsorbed phosphates will be eroded away by water and wind before they are ionized and absorbed. Worse still, if calcium and sodium are present in large quantities, and especially if even small amounts of metallic elements such as iron or aluminum are present in the soil, even the normally absorbable phosphates will bind so tightly to these elements that plants cannot absorb them.

By comparison, proper application of higher analysis products such as triple superphosphate and diammonium phosphate, can place so much absorbable phosphate around the root zones that a lot can be absorbed. The manufacture of such products, however, requires high grade phosphate ore which is only available in remote areas of Yunnan and Guizhou, two relatively undeveloped provinces in the southwest far from the principal agricultural areas.

So the Chinese production efforts have focused on single superphosphate and calcium magnesium phosphate, which, like ammonium bicarbonate, can be produced in small plants. Ninety percent of China's phosphate fertilizer output is produced in some 800 county factories (Table 5).

The development of phosphate fertilizer production capacity has been more sporadic than for nitrogen. At first, farmers were slower to be interested. If improperly applied, phosphate fertilizers, especially China's low quality products, can have little effect or even damage crops. Unlike the small nitrogen plants, the phosphate fertilizer sector has become, on average, less efficient over time, and now uses considerably more energy and sulfuric acid per ton of nutrient than it did in the 1960s. When inevitable shortages in construction funds, sulfuric acid or electricity develop, the phosphate fertilizer sector has been an easy target for temporary cutbacks. In fertilized areas, application can decrease for a few years before the impact on yields is noticed owing to the unabsorbed phosphates built up in the soil.[20]

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[20] Bruce Stone, "Fertilizer Marketing and Allocation in China," op. cit. p. C15. In addition to the sector becoming less efficient over time, product quality problems have continued to be serious, even within provinces which have achieved considerable increase in efficiency and product quality among their small nitrogen plant sectors (e.g. See Xinhua, news bulletin, November 10, 1984; Hebei Provincial Service, July 19, 1985; and "Certain Units in Provinces Like Hubei, Anhui and Henan Produce Inferior Phosphate Fertilizers Causing Damage to Peasant Interests," *Jingji Ribao* [Economic Daily], February 18, 1984, p. 1. The article also criticizes plants in Zhejiang, Shandong and Shaanxi.)

Thus the production of phosphate nutrients is now only about half of what it should be to adequately complement nitrogen production (Tables 6 and 7). The import balance, continuing to emphasize nitrogen, has done little to improve the deficiency (Table 8) which is probably understated owing to the normally low quality of Chinese phosphate fertilizers. (By contrast, output from the small *nitrogen* plants has declined to only 53 percent of total production and the quality of their products has steadily *improved*).[21]

TABLE 7.—PRODUCTION BREAKDOWNS AMONG FERTILIZER PRODUCTS, 1978–81

[Thousand metric tons of nutrients]

	1978	1979	1980	1981
Urea	1,754	2,438	2,994	3,185
Ammonium bicarbonate	3,630	4,278	5,138	5,081
Ammonium nitrate	548	610	642	682
Ammonium sulfate	146	159	148	n.a.
Ammonium chloride	100	113	137	n.a.
Aqueous ammonia	1,430	1,189	909	623
Other nitrogen fertilizers (percent)	(0.4)	(0.3)	(0.2)	[1] (2.9)
Calcium (single) superphosphate		1,243	1,646	1,780
Calcium magnesium phosphate		518	615	692
Ammonium phosphate		12	13	n.a.
Other phosphate fertilizers (percent)		(2.5)	(1.4)	[1] (1.4)

[1] Includes n.a. categories.

Source: Bruce Stone, "An Examination of the Prospects for Demand of Chemical for Chemical Fertilizers in the People's Republic of China," op. cit., Table A2.

TABLE 8.—PRC IMPORTS AND EXPORTS OF CHEMICAL FERTILIZERS, 1978–83

[Thousand metric tons of standard weight]

	1978	1979	1980	1981	1982	1983	1984
Imports:							
Urea	4,887	5,546	6,253	5,692.962	7,144.516	9,314.801	9,635.112
Ammonium sulfate	270	615	434	345.677	188.853	80.110	96.853
Ammonium sulfate by-product	33	21	3				
Ammonium chloride	256	258	213				
Ammonium nitrate		452	380				
Diammonium phosphate	222	90	763				[2]
Triple superphosphate	342	330	411				[2]
Potassium sulfate	29	64	75				
Potassium chloride	97	352	427				[2]
Potassium nitrate	15	15	n.a.				
Sodium nitrate	n.a.	15	34				
Mixed N.P.K. fertilizers	801	n.a.	n.a.				[2]
Others	[1] 381	[1] 637	[1] 1,024				
Total	7,333.3	8,394.7	10,017.5	9,306.5	11,108.2	15,192.4	
Exports:							
Sodium orthophosphate	0.15	0.15	0.10				
Phosphate	2.65	5.17	4.28				
Total	2.80	5.32	4.38				

[1] Includes "n.a." (not available) categories.
[2] See text, pp. 479–480 for approximate gross weight data.

Notes and Sources: The import totals and all 1981–83 data are from *Zhongguo Tongjiju* [State Statistical Bureau of China], *Zhongguo Tongji Nianjian—1984* [Statistical Yearbook of China—1984], (Xianggang: Xianggang Jingji Daobao Shechuban [Hong Kong Economic Reporter Publishing

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[21] Bruce Stone, "An Examination of the Prospects for Demand for Chemical Fertilizers in the People's Republic of China," op. cit., Table A3.

House], 1984, pp. 394 and 410. The 1978-81 totals are confirmed in Zhongguo Tongjiju, Zhongguo Tongji Nianjian—1981 (Xianggang: Xianggang Jingji Daobao Shechuban, 1982), pp. 382 and 392. The 1978-82 totals and 1981 and 1982 imports of urea and ammonium sulfate appear in Zhongguo Tongjiju, Zhongguo Tongji Nianjian—1983, pp. 418 and 436. The 1984 figures are from General Administration of Customs of the People's Republic of China (ed.), China's Custims Statistics, No. 1 1985, p. 33. Gross weight of all fertilizer imported in 1984 totalled 9,227,943 tons. The standard weight equivalent is not yet available.

The remaining figures are State Statistical Bureau data given to international delegations. The data have been converted from gross weight using international standards. The totals for 1978-1980 checked with those from Zhongguo Tongjiju, Zhongguo Tongji Nianjian—1981. Standard weight refers to the gross weight of specified common fertilizers with equivalent nutrient weights of fertilizers actually imported. The specified standard fertilizers contain 21 percent nitrogen, 18 percent phosphate or 25 percent potash.

Potash production has been even less satisfactory and totalled only 29,000 tons in 1983. Imports bring the application level to less than 600,000 tons which is still far from adequate.[22] Trace elements can often be supplied easily since the quantities required are very small, but site-specific analyses to determine deficiencies have only recently begun. In the United States, farmers can receive a detailed analysis of the nutrient deficiencies relative to specific crops by bringing soil samples to local universities or analytic stations run by commerical fertilizer distributors or producers. In China, such a system is at least a decade away for most of the high yield areas.[23] Until that time, nutrient prescriptions will be hit and miss and response to additional nitrogen application is likely to be inhibited by deficiencies of one or another non-nitrogenous nutrients. Of course, this is currently much less of a constraint to productive use of incremental nitrogen in medium and low yield (low application) areas.

DEVELOPMENT OF FERTILIZER PRODUCTION THROUGH 1990

Because of the nutrient application imbalance, the Ministery of Chemical Industry is planning to ease off on the development of nitrogen production capacity through 1990. Nevertheless, two large scale urea plants began trial operation by the end of 1983 and two more are scheduled for completion by 1987. In addition, efforts are being made to push production in the existing large scale plants past their design capacity. This effort has already succeeded in a few cases.[24]

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[22] The relatively slow response to make up for production deficiencies of particular nutrients with imports is overstated by these data since they fail to include 867,000 tons of (primarily) imported compound fertilizers (1983). See Table 6. 1984 production of potash fertilizers totalled 40,000 tons of K_2O.

[23] Although useful testing has been conducted at several provincial agricultural academies, a national effort to set up county level laboratories began only in 1980. Qualified technicians are of course seriously inadequate in number and the research logistical difficulties are not trivial for quickly setting up a program which can give accurate, useful results. A general soil survey was initiated in 1978, involving 83 percent of China's counties by spring of 1984. The survey in 42 percent of the nation's counties is reportedly complete (Zhou Xiao, "Improvement in Agricultural Production Conditions," *Tongji*, no. 4, 1984, p. 33). The establishment of a nationwide system to regularly process soil samples for farmers goes well beyond this effort and does not yet exist in China.

[24] Two new nitrogen production facilities (imported to Urumqi, Xinjiang Uygur Autonomous Region and Zhenhai, Zhejiang Province, from West Germany and Japan in agreements signed in 1978) began trial operations, respectively, on July 31, 1985 and late in 1983, each with an annual capacity of 520,000 tons of urea or 240,000 tons of nitrogen. Two additional nitrogen plants are currently planned to begin production before 1990: an identical one in Ningxia Hui Autonomous Region and a Shanxi coal-based nitrophosphate plant scheduled for operation in 1987 with a design capacity of 900,000 tons of products. A smaller coal-based plant producing 130,000 tons of ammonium nitrate annually (45,000 tons of nitrogen) began trial operation on August 22, 1983 in Qiqihar, Heilongjiang. Xinhua, news bulletin, March 25, 1983, June 15, 1983, December 31, 1983, April 24, 1983, August 22, 1983; "New Plant Boosts Fertilizer Supply", *Beijing Review*, August 19, 1985, pp. 29-30); Bruce Stone, "Fertilizer Marketing and Allocation in China," op. cit., p. B11. Two or three large plants for producing diammonium phosphate are being planned, but total incremental nitrogen-producing capacity for all 7 new plants would be only around 1¼ million tons per year. Design capacity has been surpassed in the Sichuan Chem-

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There is considerable unused capacity in the medium scale nitrogen plants, but a portion of these facilities are so outdated or inefficient that they have already shut down permanently or may be closed completely within the decade. Others, however, are running at less than full capacity owing to insufficient allocations of feedstock, especially natural gas.

The government has banned further construction of new small scale nitrogen plants because of the problems discussed earlier, especially inefficiency in the use of raw materials. However, the small nitrogen plants have actually become more competitive. About 300 of the least efficient plants have shut down since 1978 allowing increased resources to be allocated to the more efficient small plants, many of which operate all year (except for a standard maintenance shutdown). By drying the ammonium bicarbonate more thoroughly and packaging it properly, evaporation losses have been reduced significantly in about half the plants. And the provincial and municipal argicultural science academies have devised more efficient means of applying the product.

By 1969, technology was developed to operate the plants on low opportunity cost materials such as coal dust and brown coal. By 1973, 350 of the 800 plants in operation used such materials, and the number has continued to grow. However, many plants still use high grade anthracite or natural gas as feedstock. The efficiency of resource use has increased dramatically, cutting the energy required per ton of nitrogen in half. The current average rate of consumption is not much above that in the medium scale plants though considerably above that of the large complexes. But the most efficient small plants (often based on natural gas) are quite competitive with medium scale facilities. They are also attractive because they are locally financed and because, when located close to a source of feedstock, they impose little burden on China's inadequate transport network.

Despite the ban on new construction, plans to retrofit existing plants for expanded, more energy-efficient production continue. Output of ammonium bicarbonate has continued to increase and the average efficiency of production continues to improve. The central government seems to regard this sector now as a mixed blessing, but it may well account for one to two million tons of additional nitrogen in 1990 and will no doubt remain important for the next two decades.[25]

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ical Plant and the Luzhou Natural Gas Plant in Sichuan. Average utilization for the original 13 large plants exceeded 87 percent in 1982, and 81 percent in 1983. In addition capacity planned and newly completed construction indicated above, China is negotiating with Atlantic Richfield Corp. for exploitation of off-shore natural gas resources with financial assistance from Kuwait. In this context, a synthetic ammonia complex based on natural gas has been under dicussion. The proposed complex to be located on Hainan Island could produce up to 3 million tons of urea (1½ million tons of nitrogen) and other petrochemical products. ("ARCO Proposes Fertilizer Plants," *Beijing Review*, April 30, 1984, p. 11; *Nitrogen*, no. 153, January-February, 1985, p. 12), but the most recent news suggests that production capacity to service Hainan Island only will be constructed and most of the gas will be used for electricity generation throughout South and Central China.

[25] Stone, "Fertilizer Marketing and Allocation in China," pp. C15–C17. Since midyear 1984 when the paper was written, the efficiency of the small-scale nitrogen sector has continued to improve. Hubei's nitrogen sector began to show profits in December 1984 through increased capacity, utilization rates, and decreased per unit energy use, while that of Ningxia converted from lump coal to coal dust feedstock (Hubei Ribao, December 17, 1984, p. 1 and Beijing Domestic Service, April 14, 1985).

The Ministry of Chemical Industry (MCI) hopes to concentrate on phosphate fertilizer production, but absolute increases will probably not outstrip nitrogen for several years. China is opening eight or nine new phosphate mines around China and four mines for extraction of iron pyrite for manufacture of sulfuric acid. China has no supply of high quality natural sulfur which is expensive and scarce on the international market, and sulfuric acid (required for production of any phosphate fertilizer as well as for other industrial processes) is chronically in short supply in China. There are plans for construction of one or two large scale phosphate fertilizer plants (in Yunnan and perhaps in Hubei), but it seems unlikely that they will be operating at full capacity before the late 1980's at the soonest. The planned facility in Shanxi will produce nitro-phosphate fertilizers, and there are also plans for constructing two or three diammonium phosphate plants (in Hebei, Liaoning and Jiangsu). The Seventh-Five Year Plan includes mention of conversion of facilities at five old medium-scale plants for production of compound fertilizers and some concentrated phosphates. And there is discussion of a medium-scale ammonium phosphate plant at Tongling (Anhui) and a larger complex in Guizhou, but if the nutrient imbalance is to be fully addressed within a decade, production increments will also be required of the small scale sector.

China has only one major source of potash, in remote Qinghai Province in the Northwest. The first phase of a project aimed at extraction of potash and manufacture of potash fertilizers at this location (annual capacity: 100,000 tons of K_2O) is scheduled for completion in 1987 and a railroad line has already been constructed to service the construction and operation of this facility. Ultimately plans call for providing capacity for producing a million tons of nutrient per year, but completion would not be likely until at least well into the 1990's, and even this total would provide only about one-third of the needs of Chinese agriculture.[26]

FERTILIZER DEVELOPMENT TARGETS THROUGH 2000

Chinese government targets for domestic fertilizer production by 2000 are in the neighborhood of 24 million tons of nutrients against current production of 13.8 million tons. Application targets range from something less than 30 million to 34 million tons. This nutrient application increase from chemical fertilizers is supposed to be matched by an equal contribution from organic sources. Both Chinese and foreign estimates of current nutrient application from organic manures exhibit considerable discrepancy and are of very low precision. The Chinese Academy of Agricultural Sciences put nitrogen application from organic sources at a little under 10 million tons. Given the probable distribution among types of organic fertilizer in China and their related nutrient parameters, this would imply P_2O_5 application of less than 4.7 million tons and K_2O application of less than 9.7 million tons for a total of less than 24.4 million tons of nutrients or less than 66 percent of total nutrient application (1980). Ministry of Agriculture estimates of the proportion of nutrients absorbed from organic sources run about 60 percent of the total for nitrogen, 80 percent for phosphate and between 90 and 100 percent for potash.[27]

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[26] Eight or nine new phosphate mines are planned in Yunnan, Guizhou, Hubei, Sichuan, Shaanxi and Jiangxi, as are four pyrite mines in Anhui, Guangdong, Hunan and Inner Mongolia to provide raw materials for producing the sulfuric acid necessary to make phosphate fertilizers. The MCI would prefer to build concentrated product facilities to utilize these raw materials. There are plans to begin constructing a plant to produce 200,000 tons of triple superphosphate and 120,000 tons of di-ammonium phosphate annually (along with a 60,000 ton phosphoric acid unit) either in Guizhou Province or as an additional unit at the Haikou facility in Yunnan. Another facility to produce 400,000 tons of triple superphosphate or 240,000 tons of di-ammonium phosphate may be constructed later in Hubei Province. Two 800 ton/day DAP plants are scheduled for completion in 1987 at the Nanjing Chemical Industry Co. in Jiangsu and the Dalian Chemical Industry Co. in Liaoning, while a China-Kuwait-Tunisia venture has been established to set up a plant in Qinhuangdao, Hebei to produce 480,000 tons of DAP or 600,000 tons of compound fertilizer annually, ("China, Kuwait and Tunisja Agree to Build Fertilizer Plant in China, "*Green Markets*, Vol. 9, No. 2, January 14, 1985, p.1; *Nitrogen*, No. 153, January-February 1985, p.13). Conversion for compound fertilizer production is planned for old medium-scale facilities at Nanhua (Yunnan), Dahua (Guangxi), Zhanhua (Shandong) and two other sites, as well as a plant-for producing 140,000 tons of ammonium phosphate at Tongling (Anhui) to be constructed with Roumanian assistance (Xinhua, news bulletin, June 20, 1985). Yet without production growth in the small plant sector, the nutrient imbalance will not be fully resolved over the next several years. In view of China's past capacity construction record in the small plant sector, rapid growth in capacity can be generated if the state permits it and adjusts price incentives accordingly. See sources for footnote 24.

China will continue to import potash and phosphate fertilizers through the year 2000 but plans to eliminate nitrogen fertilizer imports. China imported 7.3 million tons of chemical fertilizers in 1978 (3.25 million tons of nutrients of which 82 percent were nitrogen). Imports rose to 8.4 million standard weight tons (3.52 mmt of nutrients) in 1979 and 10.0 million tons in 1980, dipped slightly to 9.3 million tons in 1981, then recovered and expanded to 11.1 million tons in 1982 and 15.2 million tons in 1983 (Tables 1 and 7). 1984 gross weight customs records show imports of 4.4 million tons of urea, 1.5–2.0 million tons of DAP, 1 million tons of muriate of potash and 1.5 million tons of TSP, single superphosphate and compound NPK fertilizer combined, for a total increase of 15.4 percent over 1983 fertilizer imports.

The target NPK application ratio had been stipulated to be 100:25:2, approximately that of 1981, although the appropriate future ratio between nitrogen and phosphate is under debate. Experimental results of the National Experimental Network of Chemical Fertilizers over the past years and cited (1983) by CAAS, indicate that 100:50:5-10 is the best average application ratio for major graincrops across China. The Bureau of Planning (MAAF) (1983) cited 100:50:20 as the suitable ratio "on the basis of preliminary analysis" and even 100:60:30 has been cited by the Ministry. The world's consumption ratio is 100:52:40, while China's 1983 figures were 100:30:5.[28]

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[27] Guo Jinju and Lin Bao (of the Chinese Academy of Agricultural Sciences), "A Study of China's Problems on Chemical Fertilizers," *Turang Tongbao* [Soils Bulletin], April 6, 1983, p. 1. The estimate was not very different from one converted from an energy format and found in Zhang Tong (Bureau of Planning, Ministry of Agriculture), "An Analysis of the Relationship between the Amount of Fertilizer Applied and Grain Production," *Nongye Jishu Jingji* [Agro-Technical Economics], No. 5, May 1983, pp. 11–14. Similar estimates are also found in Mao Daru (ed.), *Youji Feiliao* [Organic Fertilizers] (Beijing: Nongye Chubanshe [Agricultrual Publishing House], 1982). This source, which was published in a Ministry of Agriculture series, includes only "stable manures" (compost, plant residues and animal manures), omitting normally incorporated components such as nightsoil, green manure, oilseed cakes and river and pond mud. However, it is clear that the figures are for total available supplies, not supplies actually applied, much less absorbed. Kueh's independent estimate based on Chinese disaggregated data, but attempting to account for some of these difficulties is considerably lower (15.06 million tons for 1980) (Kueh, "Fertilizer Supplies and Foodgrain Production in China, 1952-82," op. cit.).

It is not at all clear that the fertilizer application targets are related in a meaningful way to the publicized 2000 targets for agriculture: an 80 percent increase in gross value of agricultural output and a 50 percent increment in foodgrain production over those of 1980 (to 480 million tons). But these targets should not be taken too literally. They were formulated with deliberate conservatism, (especially relative to China's requirements for human sustenance and diet improvement), contrasting with overly ambitious targets publicized in earlier periods. The very rapid growth of the past few years (reducing the total required increments to achieve the targets for 2000, to 18.4 percent of GVAO and 17.9 percent for foodgrains as of 1983 and 17.9 percent as of 1984) seem to have surprised Chinese planners and will eventually be revised upwards. Other papers in this volume will more thoroughly address supply and demand for agricultural products but it may be useful to touch on the subject in the context of future fertilizer demand.

FUTURE DEMAND FOR FERTILIZERS

It seems rather unlikely that national planners in China will be interested in construction of additional large scale nitrogen fertilizer plants in the 1980s. This indifference seems ill-advised as unsatisfied demand unquestionably exists. Average application rates per unit of cultivated area in China are still low compared to nations with much lower indexes of multiple cropping such as Japan, Korea and numerous European countries (Figure 3). While it can be argued that these latter application rates are uneconomically high owing to agricultural protectionist policies which limit more competitive international trade, the structure of China's foreign exchange accounts is less auspicious than those of the countries mentioned, particularly when viewed from a perspective of purchasing a large proportion of domestic food consumption from abroad. While recent agricultural growth is tending to reduce the current foreign exchange burden, the requirements for farm imports and fertilizer will increase sharply in the 1990s without additional capacity construction, including that for nitrogen, even before considering replacement construction for China's small plants. Meanwhile roughly two-thirds of China's farmlands are seriously underfertilized and can benefit considerably from nitrogen application even without supply of other manufactured nutrients. On the remaining one-third, many crops still do not receive adequate nitrogen (including some such as white and sweet potatoes which are very responsive). Of those that do, even more nitrogen can be productively absorbed provided phosphate, potash or trace elements are also added as needed.

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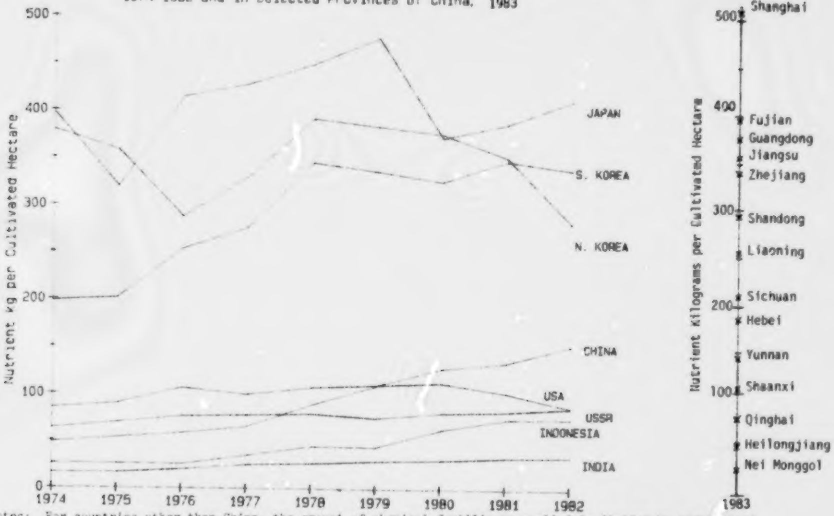
[28] Clearly the lower targets for phosphate and potash are on the way out. See Zhang Tong, "An Analysis of the Relationship between the Amount of Fertilizer Applied and Grain Production," op. cit.; Guo Jinru and Lin Bao, "A Study of China's Chemical Fertilizer Problems," op. cit.; and Table 1.

Figure 3

Consumption of Manufactured Fertilizer in Selected Countries 1974-1982 and in Selected Provinces of China, 1983



Notes: For countries other than China, the amount of chemical fertilizers applied is divided by arable land, which includes land under temporary and permanent crops (ignoring multiple cropping), temporary meadows for mowing or pastures, and land left fallow temporarily. For China, the amount of chemical fertilizers applied is divided by cultivated area (see Table 1 notes). Chinese provincial figures are derived from the chemical fertilizer consumption series in the Statistical Yearbook of China, 1983, p. 199 adjusted on a cultivated area basis rather than sown area.

Sources: Food and Agriculture Organization of the United Nations, FAO Fertilizer Yearbook, various issues (Rome: FAO, various years); Bruce Stone, "An Examination of the Prospects for Demand for Chemical Fertilizers in the People's Republic of China," paper presented at the World Bank, Washington, D.C., January 1984; "Asia Fertilizer Situation 1984," International Fertilizer Development Center, Muscle Shoals, Alabama, August 1984; and Table 3.

In developed countries, between 15 and 40 percent of applied fertilizers (especially phosphate and potash) are used on pasture land or for growing fodder crops.[29] Although current plans are not well defined, development of the concentrated livestock sector is likely to become of particular importance to China in the 1990s. Presently pastures and fodder crops receive almost no fertilizer and little is applied to economic forests and orchards. In the United States, citrus orchards are one of the country's principal consumers.

Technical change can also increase the marginal yield response and demand for all fertilizers. Although future irrigation plans are more modest than in previous periods, water from the Yangtze is currently in the process of being diverted to irrigate 6.34 million hectares of land in North China which will radically increase its potential for productive absorption of additional fertilizers on land which is currently applying little. An additional 3.11 million hectares will receive supplementary irrigation which will allow the planting of an extra crop every two years, requiring additional fertilizer application.[30] Crop varieties maturing in shorter periods are continually being developed in China. This allows additional crops to be planted in some areas, or can provide higher yields (absorbing more fertilizer) where the cropping pattern remains unchanged by avoiding losses due especially to cold in the early spring or late fall. Further opportunities for this type of development are particularly auspicious for rice. All in all, the mulitiple cropping index is expected to increase from 147 to 160 by 2000.[31]

As incomes rise, demand for vegetables, oils, sugar crops and livestock products increase sharply. These are more fertilizer intensive than providing equivalent calories with foodgrain crops. Normally, urban and suburban areas exhibit particular dynamism in this respect, owing to their more rapidly rising per capita income levels. Recent leaps in rural incomes, however, are resulting not only in increased consumption of grains, but growing interest in shifting some consumption to these products while organizational reforms allow farmers more flexibility in reallocating acreage themselves.

Organic manures currently provide a large portion of nutrients for vegetables, root and tuber crops, and even for rice, in high yield areas featuring azolla and blue-green algae culture, livestock development and plenty of animal manure. The process of collecting, mixing, storing, transporting and applying organic manures is extremely labor consuming.[32] As the value of farmers' time increases, they will prefer to use more chemical fertilizers in place of organic manures, although the two are not perfect substitutes. This will raise the demand for chemical fertilizers, even nitrogen, especially in suburban areas where more income earning opportunities exist for farmers outside of agriculture. Organic manure use in the Yangtze Delta is reportedly already decreasing.

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[29] Adolfo Martinez and Ray B. Diamond, *Fertilizer Use Statistics in Crop Production* (Muscle Shoals: International Fertilizer Development Center, 1982).

[30] Data from the Changjiang Basin Planning Office and Ministry of Water Conservancy appearing in Bruce Stone, "The Chiang Jiang Diversion Project: An Overview of Economic and Environmental Issues," in Asit K. Biswas, Zuo Dakang, James E. Nickum and Liu Changming (eds.), *Long-Distance Water Transfer: A Chinese Case Study and International Experiences*, Water Resources Series, vol. 3 (Dublin: Tycooly International Publishing Limited, 1983), p. 196. It is important to note, however, that the development of *new* irrigation facilities for the rest of the century may be much more modest, aside from this massive interbasin transfer project. The Ministry of Water and Electric Power has provided a target for 2000 of 800-820 million mu, 9.2-10.5 million hectares greater than 1982. The Ministry of Agriculture, on the other hand, has suggested needs for closer to 900 million mu (Bruce Stone, "An Examination of the Prospects for Demand for Chemical Fertilizer in the People's Republic of China, op. cit.).

[31] In addition to newly developed hybrid rice varieties for tropical areas which are predominantly but not wholly responsible for rapid advance in hybrid acreage and aggregate rice yields in recent years, China has also developed a shorter duration temperate hybrid claiming equal or better yields, which advanced to limited commercial use in Hunan in 1983 and 1984. The most auspicious development for China's short season breeding program is IR-58 developed at the International Rice Research Institute which matures in 98 days (73 days in the field after transplanting) and boasts 10-20 percent higher yields than IR-36 which matures in 108 days.

But the agricultural targets call for an increase, not a decrease, in organic manure application, by more than 100 percent. Regardless of the probably prohibitive labor requirements, the target would entail an average annual increase in applied manures of 4.5 percent, even assuming the current Chinese estimates are not overly optimistic. The most rapidly growing components of available supply, however much of this volume is actually applied, are unlikely to exceed 3 percent for a sustained period.

This means that a principal emphasis for adequately supplementing the high proportions of available manures already in use must lie with increasing its effectiveness. One method of course is to support alternative rural energy schemes including renewed hydropower and low quality coal development, as well as promoting the use of biogas digesters and solar power units, in order to allow more crop residues and other organic materials to be used directly in composting rather than being burned first as fuel. Biogas digesters have the added advantage of providing relatively anaerobic containment of manures which can preserve nitrogen and augment other available elements through fermentation. Solar energy is the only one of these expedients with which the Chinese have no serious practical experience and are not relatively well organized to emphasize if necessary. Nevertheless it would not be surprising if, owing to some combination of temporary constraints, the entire effort falls critically short of approximating the effective organic manure supply targets.

Unfortunately, this shortcoming will be a difficult obstacle to overcome, because the needed research, extension and infra-structural development effort to substitute appropriately prescribed and provided nutrient combinations on a highly disaggregated basis is not a trivial task, although it is one the Chinese have begun to recognize as important. Aggressive development of fertilizer consumption in unirrigated areas will eventually require a sustained effort in these same categories, since the problems of rapid development on such lands are more complicated. In addition, the low and declining organic content of Chinese soils is posing an increasing problem which cannot be circumvented through application of manufactured fertilizers.[33]

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[32] One Liaoning study estimates the labor requirements for all these activities at 35-45 human days per 100 kilograms of nitrogen plus 20-25 animal days (Yi Cai and Wang Haichang, *Jingji Yanjiu* [Economic Research], No. 4, 1965. On this basis, the targeted organic application in human labor requirements alone would be the equivalent of full time work for 170-220 million people for one month per year at an extremely low imputed wage, relatively concentrated in high yield, high opportunity cost areas. It is also not surprising that organic manure use in low labor density areas is similarly lower than average. In Heilongjiang, the percentage of potential manure supply actually used has been estimated to be 30 percent, about one-third that estimated for the country as a whole (Bruce Stone, "China's 1985 Foodgrain Production Target"). Owing to rapidly declining organic content of Heilongjiang soils, the provincial government has established strong incentive measures in an attempt to arrest the trend (*Heilongjiang Ribao* [Heilongjiang Daily] January 23, 1984, p. 1).

All in all, it is difficult to escape that notion that euphoria over current well-deserved agricultural successes, correctly but not uniquely associated with decentralization and liberal rural reforms, will result in insufficient public sector resolve with respect to agricultural growth, which could return to haunt China as early as the 1990's, although such difficulties could probably be managed with some degree of success by the following decade. The current atmosphere of budget shaving and cutbacks in state administrative manpower can only accentuate this risk.

PRICING, SUBSIDY AND BUDGET ALLOCATIONAL ISSUES

Figures 4 and 5 show the historical ratio of farmgate nitrogen fertilizer prices to purchase prices for paddy and wheat on a log scale. These data exhibit highly extractive price ratios for these products in the 1950s, gradually becoming more lenient over time. There were several fertilizer price cuts in the 1950s because inventories of the expensive, unfamiliar and often poorly made and packaged fertilizers, occasionally built up. But once Chinese farmers became used to the pungent ammonia products and developed some sophistication in handling phosphates, fertilizer price cuts became rare. Instead, since fertilizer was generally allocated by the state or local government to the areas deemed appropriate, *farm*

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[33] The difficulties posed by soil structural problems and their respective causes are varied, but still imperfectly understood. Sometimes the sheer repetition and intensity of chemical fertilizer application is blamed. The physical incorporation of large volumes of these products without sufficient dilution through addition of soils or organic manures can indeed alter the structural characteristics of the soil. Some fertilizers may leave salts which combine with irrigation water precipitates to form adhesive substances, although among the principal fertilizers used in China, only the small plant phosphate products have much potential to cause this kind of problem. Clearly, erosion of various sorts is contributory. A growing contingent of Chinese soil scientists emphasized the pernicious role of multiple rice plantings within the year, especially triple cropping systems which crowd the rice seasons together.

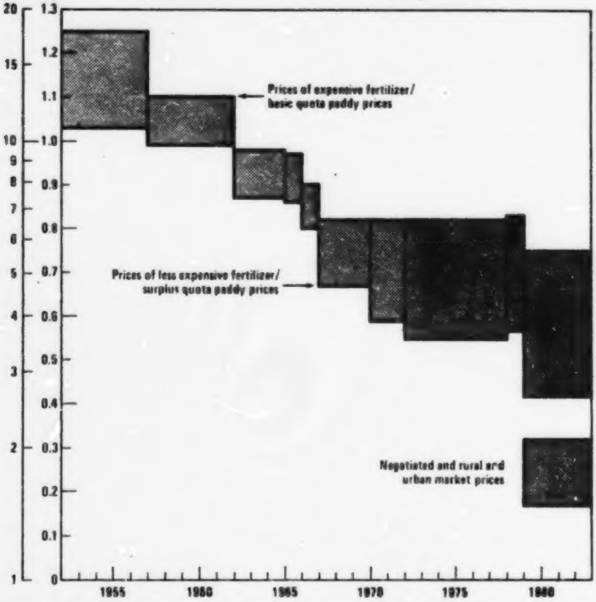
The labor-related difficulties of working deteriorated soils are obvious, but there appear to be more subtle problems presented. Plant root growth is inhibited, requiring increasing precision in fertilizer placement. Water permeability is reduced leading to poor drainage, as well as poor percolation within the relevant soil strata. For nutrient uptake, poor soil structure reduces utilization efficiency of both soil nitrogen and nitrogen from fertilizers; and, especially, causes slower uptake, stunting rice seedlings during the early growth stages. Phosphate uptake is also retarded, owing to slower and diminished extension of root systems. The ability of rice to exploit slow-release soil potassium during the early stages is also affected, which, combined with poorer drainage during the middle stages, necessitates greater application of potassium fertilizers, despite the presence of potassium in the soil.

Use of ample organic manures not only retards (and potentially reverses) this structural deterioration with its attendant problems, and provides a broad complex of important nutrients not supplied by the standard manufactured fertilizers, but has a synergic relationship with uptake of nutrients from chemical fertilizer application, independent of these effects, according to Chinese research. Chemical fertilizers purportedly *increase* the rate of uptake of soil and organic manure nitrogen, while the presence of the latter tends to immobilize unabsorbed nitrogen from chemical fertilizers, temporarily preserving them for possible later uptake.

Whatever the most important processes, it is clear that the growing inability in China to generate a sufficient growth rate in organic manure application to complement the continued rapid growth in chemical fertilizer use will pose a very real problem for future agriculture growth, especially in the intensive multiple rice cropping systems. (Xiong Yi, Xu Qi, Yac Xianliang and Zhu Zhaoliang, "Effect of Cropping Systems on the Fertility of Paddy Soils," *Turang Xuebao*, no. 2, 1980; Li Shiye, Wang Jiayu, and Kong Wangen, "Studies on the Characteristics of Nitrogen Supply in Paddy Soils; "Observation of Soil Nitrogen Supply in Different Paddy Soils," *Turang Xuebao*, no. 1, February, 1981; Chen Ziming, "Studies on the Relationship between the Characteristics of Soil Structure and Soil Fertility of Spongy Fields," *Turang Xuebao*, no. 2, 1981; Zhu Zhaoliang, et al., "Soil Nutrition Status under Rice-Wheat Rotation and the Response of Rice Fertilizers in Suzhou District," *Turang Xuebao*, no. 2, 1978; Huang Dongmai, Gao Jiahua and Zhu Peili, "The Transformation and Distribution of Organic and Inorganic Fertilizer Nitrogen in Rice-Soil Systems," *Turang Xuebao*, no. 2, 1981).

goods prices in market surplus localities were raised to cover the increasing costs of fertilizer purchases.

Figure 4
Nitrogen to Paddy Price Ratios, 1952-1983

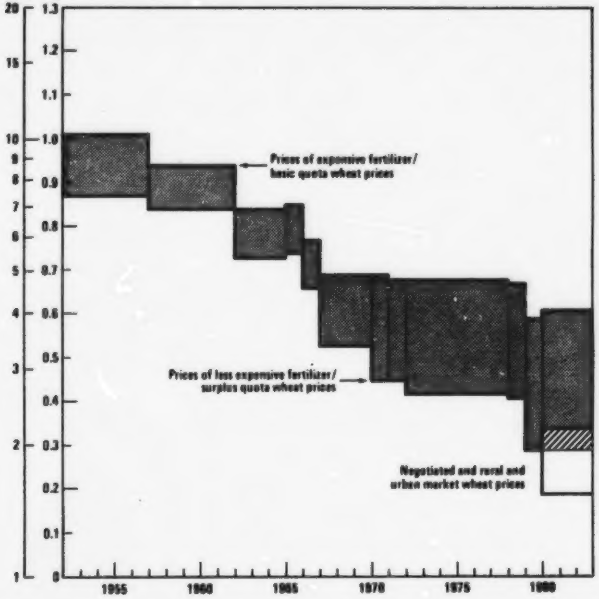


Notes: Nitrogen prices are for urea, ammonium sulfate and ammonium nitrate. Ammonium bicarbonate, although very important in China, is not included since its price varies considerably among localities. The state recommended prices for this product have been a poor indicator of actual average prices over time. Changes in the price ratios may be due to changes in fertilizer or quota procurement prices or availability of surplus, negotiated or market prices for paddy and wheat or changes in the price increment for surplus quota delivery (1970, 1972 and 1979). This downward trend in the price ratio was curtailed in 1984 when urea prices were increased 13.3 percent and in 1985, with the establishment of a single prices for all contractual purchases (which replaced basic and surplus quota purchasers) implying a nitrogen to paddy price ratio of 3.6 on the linear scale. At the same time, negotiated prices were eliminated and rural and urban market prices have been falling somewhat (increasing the fertilizer to market grain price ratio).

Sources: He Gang et al. (eds.), Zhongguo Nongye Nianjian (1980) [Agricultural Yearbook of China 1980] (Beijing: Nongye Chubanshe [Agricultural Publishing House], 1981), pp. 380-382; Nongye Jishu Jingji, op. cit., pp. 742, 773-74 and 793; supplemented by disaggregated Chinese fertilizer prices collected in Bruce Stone, "Fertilizer Marketing and Allocation in China," op. cit., Tables 2 and 3. For several recent adjustments, see PRC State Council, "1985 Document No. 1 on Rural Economic Reform (January 1, 1985)," Xinhua news bulletin, March 24, 1985.

Figure 5.

Nitrogen to Wheat Price Ratios, 1952-1983



Notes: Nitrogen prices are for urea, ammonium sulfate and ammonium nitrate Ammonium bicarbonate, although very important in China, is not included since its price varies considerably among localities. The state recommended prices for this product have been a poor indicator of actual average prices over time. Changes in the price ratios may be due to changes in fertilizer or quota procurement prices or availability of surplus, negotiated or market prices for paddy and wheat or changes in the price increment for surplus quota delivery (1970, 1972 and 1979). This downward trend in the price ratio was curtailed in 1984 when urea prices were increased 13.3 percent and in 1985, with the establishment of a single prices for all contractual purchases (which replaced basic and surplus quota purchasers) implying a nitrogen to wheat price ratio of 2.7 on the linear scale. At the same time, negotiated prices were eliminated and rural and urban market prices have been falling somewhat (increasing the fertilizer to market grain price ratio).

Sources: He Gang et al. (eds.), Zhongguo Nongye Nianjian (1980) [Agricultural Yearbook of China 1980] (Beijing: Nongye Chubanshe [Agricultural Publishing House], 1981), pp. 380-382; Nongye Jishu Jingji, op. cit., pp. 742, 773-74 and 793; supplemented by disaggregated Chinese fertilizer prices collected in Bruce Stone, "Fertilizer Marketing and Allocation in China," op. cit., Tables 2 and 3. For several recent adjustments, see PRC State Council, "1985 Document No. 1 on Rural Economic Reform (January 1, 1985)," Xinhua news bulletin, March 24, 1985.

It is interesting to note that during the Cultural Revolution period (1966–76), as input expenses for increasing yields were rising rapidly, basic quota farmgate prices did not change, but the expedient was developed of establishing (1970) and raising (1972) a surplus quota price[34] which adjusted the *marginal* fertilizer to grain price ratios relevant for the decision to *increase* fertilizer purchases in dynamic areas, without incurring unnecessary government losses by raising the basic quota price. The price of urea, which was only imported (and produced on an experimental basis) prior to the late 1960s, was lowered in 1971. Urea, of course, was allocated almost exclusively to market-oriented and market surplus areas. But aside from downward adjustments for several fertilizers in 1966–67, such prices remained relatively constant throughout the remainder of the period.[35]

The instructive point of the Chinese experience is that despite fertilizer to farm goods price ratios that would have been regarded as thoroughly punitive anywhere else in the world, the rapid expansion of fertilizer use was not inhibited until perhaps the mid-1970s. It was only then that complaints began to surface of collectives which had succeeded in increasing yields but had failed to achieve growth in per capita income over the preceding decade.[36] The state got away with these ratios essentially because of relatively effective extension work, aggressive development of high yielding, if somewhat risk-prone, seed varieties, a genuine commitment to irrigation, and often unpopular labor-intensive capital construction efforts. The state might have persevered with this strategy even longer if the administrative quality of these efforts had not suffered, resulting in failure to realize some of the gains from investments, and if governments had not further irritated farmers by additional restrictive and high-handed orders in a vain attempt to salvage the deteriorating situation. All in all, in view of China's base in the 1950s as a mature but pre-industrial agrarian system, it was a rather remarkable effort to avoid spending in agriculture while achieving roughly acceptable agricultural growth. Of course, such extreme conservation was necessary owing to the capital intensive, heavy industry oriented framework. But given the limitations of this orientation, the strategy for agriculture came to grief primarily because it was pushed too hard for too long.[37]

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[34] Nick Lardy has correctly identified these dates as those when the surplus quota price premium was officially instituted (20 percent in 1970) and then raised nation-wide (to 30 percent in 1972) ("Agricultural Prices in China," World Bank Staff Working Paper no. 606, Washington, D.C., 1983, p. 5). The premium was raised again to 50 percent in 1979.

[35] Prices for fertilizers "were lowered 10–15 percent" in 1966–67 (*Peking Review*, January 12, 1968, p. 33). According to the prices appearing in *Nongye Jishu Jingji Shouce* (op. cit., pp. 742, 774–74, and 793), there was a minor price cut for single superphosphate and more major ones for ammonium sulfate and ammonium nitrate somewhere between 1966 and 1971. However the quoted ammonium nitrate price through 1966 is questionably high compared with sporadic 1950s data, and the 1971 ammonium sulfate price cut conflicts with later 1970s data. The latter unsystematized reports of fertilizer prices may have been relevant for specific small plants beginning to produce these products for which conformity with state recommended prices is weak (Stone, "Fertilizer Marketing and Allocation in China," op. cit., pp. D9–D18).

[36] A classic article of this type is Yao Jinguan, "Preliminary Discussions Concerning the Price Scissors Between Industrial and Agricultural Products," *Jingji Yanjiu* [Economic Reseach], December 1978, pp. 32–36, discussing Hebei Province circumstances during the Cultural Revolution decade.

[37] For an elucidation of this position, see Bruce Stone, "Long Term Intersectoral Resource Flows," op. cit.; and Stone, "Relative Foodgrain Prices in the PRC," op. cit.

In contrast, while the 1979 price adjustments were absolutely necessary not only socially, but to enable *the right* farmers (capable of selling rather than eating incremental produce) to purchase the additional fertilizer upon which much of the agricultural growth is based, the extent of those price adjustments was probably unnecessary. Owing to an inability to pass the price increases on to the ration card holders, the urban food subsidy exploded to consume one-quarter of budgetary expenditures by 1980,[38] bringing about a variety of budget cuts, notably in capital construction. As of 1985, the price at which the state will purchase above quota produce has been reduced and the promise of guaranteed government purchase has been rescinded, while recent agricultural successes have contributed to falling prices on private markets. More ominously, the percentage of the state's capital construction funds allocated to agriculture never reached 18 percent as planned. The total state construction budget declined by 21 percent in 1981 and the proportion allocated to agriculture, forestry, water conservancy and meteorology fell to 6.6 percent, then to 6.1 percent of a recovered 1982 budget, 6.0 percent in 1983, and 5.0 percent in 1984.[39]

China's leaders seem to be crediting present successes in agricultural to rural organizational reforms, to increased supplies of fertilizer and to the provision of financial means for peasants to purchase them. They are not wrong. But it would probably be a mistake to expect such successes to continue without public sector investment either predominantly in terms of capital or, as was attempted during the Cultural Revolution, supplemented by administrative services and rural labor mobilization efforts. For the rest of the decade, China can ride on the consolidation of unrealized returns in these areas from previous periods, if the 1985 adjustments in the marginal fertilizer to grain price ratios do not hit growth incentives in high application areas too hard. But what of the 1990s? When pressure, owing to intensified fertilizer application, leading to declining marginal response ratios in the high yield areas, starts building again for a fertilizer or farm goods price adjustment, what then? Without investment to continue to shift up the production functions of these areas, or mobilization to increase fertilizer allocation and application in areas which are not yet experiencing sharply diminishing returns, there will not be much output response to future price adjustments.[40]

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[38] Nick Lardy, "Agricultural Prices in China," op. cit., pp. 31-50.

[39] Bruce Stone, "Relative Foodgrain Prices in the PRC," pp. 22-25; Zhongguo Guojia Tongjiju, *Zhongguo Tongji Nianjian, 1984*, p. 325. The proportion of state-budgeted funds for capital construction to be devoted to agriculture increased from 10.7 percent (1978) to 14 percent (1979) and was scheduled to rise to 18 percent (1980-82). Operating expenses for agriculture and state outlay of aid to communes, brigades, and teams rose from 6.9 percent (1978) and 6.3 percent (1979) of the State's annual expenditures to 8 percent (1980). Long-term low interest loans to rural people's communes from the Agricultural Bank of China and the rural credit cooperatives rose from 13 billion yuan (1978) to 17 billion yuan (1979). The total sum made available in 1980 was to be 20 billion yuan, (35 billion yuan including exempted repayments), and the volume by 1985 was supposed to be "more than double" the 1978 level.

Table 9 shows that for the dynamic locations (satisfying tax and basic quota obligations and selling on the margin at surplus quota, market or negotiated prices), the *marginal* price ratios during the 1979-84 period were not particularly high relative to most other countries. These were adjusted upward in 1985. But future pressure to further twist the terms of trade in favor of farmers could land China with an immense direct or *de facto* fertilizer subsidy to match the onerous food subsidies, and further drag down public sector investment.

TABLE 9.—RATIOS OF FARM LEVEL PRICES FOR NITROGEN AND GRAIN, SELECTED COUNTRIES, 1979–1983

Selected wheat producers	Price ratio of N/wheat	Selected rice producers	Price ratio of N/paddy (rice)
Mexico	1.3	Japan	0.5
Bangladesh	1.5	Korea, Rep	0.7
Egypt	1.6	Indonesia	1.6
Portugal	1.6	Sri Lanka	1.7
China: market price	1.65	China: market price	1.8
China: surplus-quota price	2.1	Bangladesh	2.1
Syria	2.1	Nepal	2.2
Canada	2.4	China: surplus-quota price	2.8
Pakistan	2.6	Malaysia	3.1
USA	2.6	Philippines	3.2
Turkey	2.7	Thailand	3.4
Nepal	2.7	Pakistan	3.6
France	3.0	India	1.9–4.7
China: basic quota price	3.1	China: basic quota price	4.2
Brazil	3.1		
India	3.6		
Kenya	4.5		
Australia	5.4		

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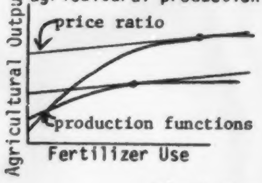
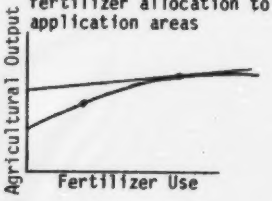
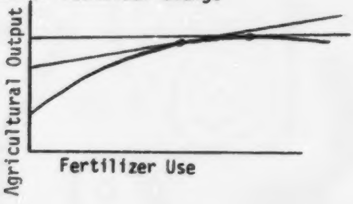
[40] Output increase due to localities able to technically transform agricultural production



Output increase due to greater fertilizer allocation to low application areas



Output increase due to price change in high consuming localities without further technical change



Notes: Fertilizer prices are in terms of nitrogen content. Rice prices are in terms of farmgate prices for paddy facing farmers. During 1979–84, the state purchased any grain provided above surplus quotas at a negotiated price approximating market prices. As of 1985, this triple level government price structure was eliminated. Both surplus and basic quotas are to be purchased at a 70:30 weighted average of the surplus and basic quota prices. This means the nitrogen to paddy price ratio for all quota sales is 3.2 in 1985, while that of wheat is 2.4. More important, the government no longer promises to purchase all above quota output, the negotiated price is eliminated and according to various reports, any above quota gain will be purchased either at the new 70:30 uniform price or at the old basic quota price. This substantially changes the marginal price ratio for government sales but omits lower but increasing price ratios relevant for private market trade.

Sources: The non-Chinese wheat ratios are from Centro International de Mejoramiento de Maiz y Trigo [International Wheat and Maize Improvement Center (CIMMYT)], 1983 World Wheat Facts and Trends, Report No. 2 (Mexico: CIMMYT, 1983), Table 6, p. 18. The non-Chinese rice ratios (for 1979 and 1980) are from International Bank for Reconstruction and Development, Rice Handbook, IBRD, Washington, D.C., February 1981, Table VII-B1. The Chinese data are based on a farmgate price for urea of 450 yuan per ton and 1980 wheat and rice prices, from Bruce Stone, "Relative Foodgrain Prices in the PRC," Table 4.

The real question is not confined to that of the total volume of agricultural investment, but is one of the most appropriate mix of public and farmers' own investment. The value of individual farmer initiative has long been underrated in China as a productive force. The unfettering of this force through various rural policy reforms is, without a doubt, a major contributory factor to the rapid pace of current Chinese rural development. But unlike the case of the United States characterized by more abundant high quality land resources, Chinese agricultural growth in the 1990s will probably be constrained to rely heavily on a significant proportion of investment allocations that will be of a size or specific nature which will be difficult for individual farmers or companies of farmers to manage. Especially in the absence of larger capital construction investments, careful state organizational and administrative efforts will need to be made during agriculture's current heyday, to prepare for needed growth in the more intractable 1990s and beyond.

Without large public sector investments in rural capital construction in the 1980s to assist continued progress in agricultural transformation, there remain three main avenues which could lead to rapid growth in the 1990s. First, private and locally generated investment can continue to make better, more efficient and more complete use of existing basic infrastructural projects. The Chinese are counting heavily on this source, along with gains from specialization, within-locality resource allocation efficiency, and farmers' initiative, to generate growth in the current decade. The returns in these areas have not been small, but by the 1990s the bulk of the most easily achievable gains may be fairly well played out.

Second, broader growth participation throughout China's low and medium quality farmlands would be attractive from an equity standpoint and, owing to the current extent and relative disenfranchisement of such areas with respect to high quality inputs to agriculture, especially fertilizers, this strategy could provide a reasonable pace of aggregate growth for the remainder of the century. The Chinese Academy of Agricultural Sciences is clearly moving along this track, with their renewed emphasis on seed improvement for poor land crops and fertilizer use in unirrigated areas. But it is not yet clear that this effort will be sufficient to generate much growth by the 1990s. This is first because it is no simple matter: a) to shift the emphasis of the high quality agricultural research institutions, heavily oriented toward dealing with problems of accelerating growth on *high yield* land; and b) to quickly improve the quality and volume of work already being done in the hinterland academic institutions. It is also because seed improvement for poor land conditions is fundamentally more difficult from a technical standpoint, and fertilizer diffusion in unirrigated areas is fraught with more complex supply and extension problems and is apt to develop more slowly and intermittently.

The most crippling blow to this strategy, however, would seem to be the lack of resolve to maintain fertilizer supply pressure through continued construction of factories. It seems fairly evident that fertilizer allocation to medium and low yield lands can develop to any meaningful extent only with increasing aggregate supplies. If imports are relied on to push growth in such areas, temporary stock build ups are likely to lead to import cutbacks, resulting in supply shortages, in a lagged cyclical pattern typical of fertilizer import-dependent developing countries and characterized by low trend growth in use. This may have happened in China in 1985. But domestic construction plans for large plants producing concentrated nitrogen fertilizers (of fundamental importance for the low application areas) and plans for expansion of production in medium-scale plants, are relatively modest, although generally located in the average and below average provinces in terms of fertilizer application.

Aside from the interprovincial pattern of distribution, the even more sharply skewed within-province differences in allocational intensity seem likely to improve significantly in only a few cases through growth in production from large and medium scale plants. Their hope would then seem to reside in continued small plant development, but such construction has now been banned. All in all, there is no reason to doubt the growth potential associated with this strategy, but time may run out to coordinate a sufficiently serious and comprehensive effort to generate rapid growth throughout the 1990s.

This leaves the possibility of increasing the efficacy of fertilizer use in China which, unless the state revises upward its fertilizer plant construction commitments, is probably the odds-on choice for generating 1990s growth under the circumstances, because it will depend primarily on performance in the relatively well-organized and technically skilled farming localities that have generated much of the growth so far.

THE EFFICIENCY AND EFFICACY OF FERTILIZER USE

One way this can be done is to improve the balance of fertilizer nutrients applied to high-yield soils. Because of the unusual current imbalance indicated above, there may be considerable aggregate potential to increase the returns to nitrogen products by proper complementary applications of phosphates, potash and micronutrients. This will become increasingly important to the extent that the naturally more balanced contribution of organic fertilizers is replaced by manufactured products. This effort would be facilitated, with less soil structural impact, by a gradual shift, in the principal high application growing areas, toward higher analysis phosphate fertilizers with greater proportions of available phosphates. But this will depend on firm import commitments or an acceleration of efforts to produce and properly distribute these products.

As time goes on, gains in the efficacy of fertilizer use will depend increasingly on fine tuning the application timing and quantities of various fertilizer products to the exact needs of specific crop varieties in specific seasons, on specific lands, in specific localities. Given time and access to appropriate material, Chinese farmers would work this out for themselves. If the process is to be accelerated, very sophisticated institutions for quickly and accurately analyzing requirements on a highly disaggregated basis, well linked with supply and distribution planning for fertilizer products, will need to be developed. To accomplish this, high quality manpower and other resources must be strengthened at the handful of capable institutions performing this kind of work, efforts must be made to develop the quality and scope of the work in other, more widely dispersed institutions, a streamlined analytical process fully integrated with extension efforts must be developed, and tasks coordinated, as needed, among the Social Science Institutes, the Institutes of Soil Science and of Geography of the Academy of Sciences, and the Soil and Fertilizer Institutes of the Academy of Agricultural Sciences, where this sort of work is currently performed.

Another auspicious area for improvement in the efficacy of fertilizer application lies with attempts to reduce nitrogen losses from volatilization and denitrification, thereby increasing nitrogen available for uptake by crop root systems. The measured rate of uptake for broadcast ammonium bicarbonate has ranged in various Chinese studies from 24 to 30 percent, with application to calcareous paddy soils at the low end of the range. Yet the rate of utilization for broadcast urea and ammonium sulfate in calcareous paddy soils has also been measured at around 22 percent. On more acid paddy soils, recovery by rice plants could be as high as 40 percent for urea and up to almost 60 percent for ammonium sulfate. On nonpaddy soils, uptake for broadcast urea and ammonium sulfate is generally estimated at around 50 percent. These are important statistics because fertilizer in China is still predominantly applied by hand scattering or dissolving in buckets of water and tossing the solution with a ladle.

By contrast, deep placement of ammonium bicarbonate can improve recovery to between 37 and 52 percent, with some further improvement if granulized. On operating farms the average utilization rate increase has been estimated to be 15 percent. For deep-placed urea, the lower bound appears to be similar, but the upper bound for granulized urea could exceed 80 percent under good conditions. Top dressing in the middle stages of rice growth showed more than 60 percent recovery although less was retained in the soil for potential later uptake.[41]

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[41] Xiong Yi, et al., "Effect of Cropping Systems on the Fertility of Paddy Soils," op. cit.; Zhu Zhaoliang, et al., "The Effect of Forms and Methods of Placement of Nitrogen Fertilizer on the Characteristics of the Nitrogen Supply in Paddy Soils," *Turang Xuebao,* no. 3, 1979; Chen Rongye and Zhu Zhaoliang, "Studies on the Fate of Nitrogen Fertilizers: The Fate of Nitrogen Fertilizer in Paddy Soils," *Turang Xuebao,* no. 2, 1982; Zhang Tong, "An Analysis of the Relationship Between the Amount of Fertilizer Applied and Grain Production," op. cit.; Zhao Xiao, "Improvement in Agricultural Production Conditions," op. cit.; Bruce Stone, "China's 1985 Foodgrain Production Target," op. cit., pp. 136-137. The Jiangsu Academy of Agricultural Sciences has developed a technique of removing paddy water during fertilizer application, followed by rapid incorporation, which has had good results in reducing nitrogen losses, but requires a high degree of water control.

Serious work to develop pelletized ammonium bicarbonate and a suitable cheap and easily assembled applicator began in Fujian Province in the early 1970s. By 1979, the Soil and Fertilizer Institute of the Fujian Academy of Agricultural Sciences had developed a pelletizer and applicator that could be fabricated in local machinery factories and was widely in use throughout Fujian. Assembly and dissemination of the equipment moved outside of the province, but failure of the applicator to adequately seal the fertilizer from alkaline paddy water (with resultant breakdown to ammonia and carbon dioxide gas with attendant loss of nitrogen) retarded its effectiveness and therefore its acceptance in rice growing areas, although it has been reportedly introduced with greater success, especially in North China, in about one-third of Chinese farming areas.

With the criticism of the inefficiency of small plants and the poor quality of their products and current pressure for their closure, attention has shifted to the development of a practical applicator for deep-placement of prilled or granulized urea. Meanwhile, the institutes associated with the Ministry of Chemical Industry have discovered that marginally reducing the moisture content of manufactured ammonium bicarbonate radically cuts storage losses at a given temperature. Consequently, the quality standard for finished product has been changed from 5 percent to a maximum of 3.5 percent water. Reportedly, about half the small plants can meet or exceed those standards.[42]

Packaging of ammonium bicarbonate has gradually improved, thereby reducing evaporation, but one CAAS study places losses associated with packaging, transport and warehousing at more than 20 percent nationally and, in some areas, 30 to 40 percent. Another study places losses in the shipping process from volatilization alone at around one million tons of nitrogen or around 10 percent of aggregate application.[43]

Further improvements in these areas will require concerted and heightened activity, not only in the Science and Agriculutural Science Academies, but in industry research, such as the exemplary integrated work performed at the Shanghai Chemical Industry Academy, and among the institutes of the Agricultural Machine Science Academy. It will also require responsiveness among industrial management and planning organizations, within the Planning Bureau of the Ministry of Agriculture, the Ministry of Transport, the Ministry of Commerce, and the Agricultural Means of Production Corporation, as well as close and efficient links with agricultural extension. A very high priority for the rural energy programs to steadily reduce the burning of crop residues seems similarly critical.

There can be little doubt that Chinese overall performance in this entire complex of areas, is an unusually good one among developing countries. But it would seem to be rather risky to place faith for rapid growth in the 1990s upon successfully accelerating the coordination, quality and scope of these intricate processes. One would think, then, that the Chinese government would want to backstop a serious upgrade in concentration on agricultural and fertilizer-related research, extension, rural energy, and administrative and process reform, with more aggressive concrete plans to expand procurement and distribution of fertilizers more rapidly over the coming decade.

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[42] Bruce Stone, "China's 1985 Target," op cit.; Bruce Stone, "Fertilizer Marketing and Allocation in China," op. cit.; pp. C8 and C18-C19.

[43] Liu Gengling (Soil Science and Fertilizer Research Institute, CAAS), "Readjust the Proportion of Chemical Fertilizers, Improve the Effect of Fertilizer," *Renmin Ribao*, June 30, 1983, p. 3; Guo Jinju and Lin Bao, "A Study of China's Chemical Fertilizer Problems," *Turang Tongbao*, no. 2, April 6, 1983, pp. 25-27.

Ultimately, improved efficacy of fertilizer application will be indispensable to avoid the necessity of relying on costly price adjustments to encourage greater quantities of fertilizer use in consolidated market-oriented areas. The difficulty is the time lags involved with making measurable aggregate progress on Chinese farms. One way or the other, despite the recent remarkable rate of increase of both chemical fertilizer and farm goods production, which will no doubt result, at least in temporary reductions in agricultural imports which could easily continue for several years, much of the remainder of the century will very likely continue to find China a fairly important net importer of food, fertilizer or fertilizer equipment, provided growth in demand for food and feedgrains remains strong.

IV. INDUSTRY, TRANSPORTATION, AND CONSTRUCTION

OVERVIEW: INDUSTRY AND TRANSPORT

By Thomas G. Rawski*

Industry and transport are vital sectors of China's economy. Whether we consider the magnitude of past achievements, their role in China's evolving economic structure, or the seriousness and complexity of obstacles to improved performance, these sectors are central to any systematic assessment of China's economic situation and prospects. The objective of the papers that follow is to describe the present position of China's industrial sector in the light of its historic development, evaluate industry's growth potential, analyze the constraints that may interfere with its future expansion, and consider the probable impact of Chinese efforts to ameliorate these constraints.

ACHIEVEMENTS AND WEAKNESSES

Widespread criticism of past performance and advocacy of industrial reform must not blind us to the very real achievements of China's industrial sector since 1949. The quantitative analysis contained in the Central Intelligence Agency's paper shows that, despite continuing measurement problems, China has amassed an enviable record of industrial expansion over the past several decades. The scale of industrial operations is immense. China ranks among the world's top producers of textiles, bicycles, coal and many other goods. Every province but Tibet can claim more state enterprises than Hungary, an economy whose reforms are often compared with China's. China's industrial work force may exceed the combined total for all other developing nations.

Industrial growth is not limited to mere expansion of output volume. Many new sectors have appeared. Chinese satellites now orbit the globe, Chinese missiles threaten Soviet cities and Chinese contraceptive pills contribute to a falling birth rate. China has mastered a broad range of industrial technologies. More than one Western business has been surprised to discover domestic plants manufacturing the very products that it hoped to introduce into the Chinese market. Field's paper also demonstrates that industry has attained a substantial degree of geographic dispersion.

Why is reform needed in Chinese industry? Pressure for reform arises from widespread recognition that industrial gains have come in the face of massive avoidable inefficiency and waste. As in the Soviet Union and Eastern Europe, greater infusions of labor, resources and capital are the chief contributors to higher output, with productivity change, a crucial ingredient in the growth of market economies, notable for its absence. In the terminology of Chinese economics, China has experienced "extensive" rather than "intensive" industrial growth. Field's calculations (see his Table 12) show that labor productivity has risen steadily, but at relatively modest rates, while output per unit of fixed and working capital has declined substantially. If we use these figures to measure output per combined unit of labor and capital, the resulting estimates of total factor productivity show no increase since the mid-1950s, indicating that productivity gains from new technology, improved education and the accumulation of industrial experience have been completely offset by cost increases arising from other causes.

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The sources of these cost increases are described in some detail in the contributions by William Fischer, Barry Naughton, Andrew Walder and Christine Wong. Enmeshed in an organizational structure in which enterprise interests remained subordinate to the demands of plan targets and the priorities of local authorities, managers have enjoyed little scope for autonomous initiative to alter product mix, change suppliers, enlarge sales or restructure operations in pursuit of cost reduction or quality change. Especially at large enterprises, operations were tightly constrained by the dictates of plans that, as we now know, were poorly coordinated and filled with inconsistencies. Entrepreneurial initiative was devoted to the pursuit of ad hoc measures needed to fill imbalances between output targets and allocations of materials, labor and equipment.

Perhaps the most unfortunate consequence of the pre-reform system was its effect on innovation. Innovation was never absent from Chinese industry. When planners or national leaders identified specific areas where new products or technologies were urgently required, the factory sector responded with impressive skill and ingenuity. China's successful development of nuclear weapons and earth satellites illustrates the nation's growing ability to master advanced military technology. In the civilian sector, the development of petroleum and chemical fertilizer production in the 1960s after the collapse of the Great Leap Forward and the split with the Soviet Union had revealed unexpected requirements for fuel and plant nutrients, demonstrated a capacity for innovation on a far larger scale.

Beyond the changes demanded by national plans, however, there was a tendency for innovative effort to sink to a low position on the scale of managerial values. Except for rare instances of official recognition, successful completion of unplanned innovations brought scant reward to the enterprises or individuals involved. With rigid prices, improvements in quality brought little or no return to the producer, while the cost and delay involved in implementing new ideas threatened to disrupt fulfillment of current output plans. Innovative efforts could easily founder for lack of suitably skilled workers; enterprises in need of particular skills experienced great difficulty in obtaining help from the cumbersome system of labor bureaus that controlled the allocation of manpower. Furthermore, failure to innovate carried little risk. With most products assured of guaranteed markets at fixed prices and most customers anxious to obtain even poor quality products under conditions of excess demand, competition from other enterprises could hardly endanger the stability of factory operations. If costs exceeded revenues, state subsidies made up the difference.

With the link between effort and reward thus weakened, most industrial units remained content to carry out their assignments. Only when plans included specific provision for introducing new products or techniques, in which case managers could demand extra supplies of skilled labor, equipment, etc. before accepting responsibility for special tasks, was attention sharply focused on innovation. Under these conditions, technology and product quality often remained "frozen" for long periods at levels far below the potential attainable with existing technical capabilities. The energy crisis of the 1970s encouraged vehicle manufacturers in many countries to design lighter, more fuel-efficient cars and trucks; no such changes in occurred in China. Coal mines continued to ship large quantities of unwashed coal, adding substantially to China's transport difficulties. Sewing machine plants continued to produce outmoded treadle models because they hesitated to equip their products with unreliable electric motors supplied by domestic producers. Manufacturers in all sectors built up large inventories of surplus materials, labor and underutilized equipment to defend themselves against unexpected changes in plan requirements and to support semi-legal barter transactions needed to overcome sudden commodity shortages or to fill out inadequate supply allocations. All of these tactics contributed to the stagnation of industrial factor productivity.

INDUSTRIAL REFORM

The purpose of industrial reform is to tap these sources of potential output growth by encouraging the pursuit of unplanned innovation at all levels of the industrial system. The past five years have brought energetic pursuit of a broad range of reform initiatives along with intense debate over the type of industrial structure best suited to China's needs and the policies needed to obtain such a structure. It is not easy to summarize industrial reform initiatives because there is no clearly articulated reform plan. The presence of divergent opinions both within and outside the government creates ongoing gaps between policy and practice in various sectors and regions. Despite these inconsistencies, we may distinguish four main areas of reform: incentives, devolution of authority, expansion of markets, and pricing.

INCENTIVES

There is abundant evidence that what W. Arthur Lewis calls "the will to economize" is deeply rooted in Chinese culture and society. Clear signs of flagging motivation among industrial workers and managers signalled the high costs of the pre-reform system under which the state appropriated most revenues and covered most expenses of industrial units, set wages primarily on the basis of seniority, and discouraged exchange arrangements other than those stipulated in annual plans.

In response to these difficulties, the Chinese have introduced reforms in the treatment of profits, in wage policy and in the property rights attached to technical knowledge and skills. Profits formerly delivered to the state were first shared between state and enterprise. Recent changes seek to leave producers in control of residual profits after payment of income and other taxes intended to offset imbalances arising from long-standing price differentials and from previous allocations of resources and equipment. Retained profits can be used to supplement wages, to construct housing or for technical development. Enterprises unable to earn profits find themselves threatened with closure or loss of bonus payments.

Recognition of the deleterious effect of a system that fails to link wages and job security with enterprise or individual performance has brought a flood of proposals for wage reform. Critics have attacked the "iron rice-bowl" or lifetime tenure enjoyed by industrial workers, the "ting-t'i" system under which retirees transfer employment claims to their children, and the difficulty of arranging transfers between jobs, but no clear reform alternative has emerged. As William Fischer notes in his paper, efforts to increase labor mobility are complicated by the importance of the work unit in delivering a variety of social services.

In the past, the absence of compensation for providers of technical knowledge discouraged the spread of information and helped to maintain wide productivity gaps between producers of similar products in different regions. New policies now encourage regional governments, firms and even individuals to negotiate consulting agreements or other forms of compensated technology transfers. These reforms are supported by trademark and patent legislation and by new organizations that offer business and technical advice on a commercial basis.

DEVOLUTION OF AUTHORITY

Many Chinese economists see excessive regulation as a major source of industrial inefficiency. They emphasize the impossibility of comprehensive planning for China's huge industrial sector, and speak of enterprises being "regulated to death." We have ample evidence that construction, foreign trade, procurement of materials, interregional trade and many other economic processes have indeed suffered from excessive regulation.

As Barry Naughton and Christine Wong explain in their papers, "decentralization" in the Chinese context is a complex phenomenon that can lead to a variety of outcomes. In some instances, downward transfer of authority has left enterprise managers subservient to officials of local rather than central bureaucracies without increasing the ability of the firm to pursue its own interests. Transfer of decision-making authority to enterprise managers is actively opposed by advocates of more rather than less central control who see past difficulties as the result of technical incompetence rather than inherent limitations of the planning process.

Despite continuing controversy, reform policies have granted considerable authority to both localities and enterprises in production, investment, supply work and marketing, areas traditionally dominated by central government ministries. Enterprises may unilaterally alter their product mix, advertise for new customers, sign contracts with suppliers of their own choice and purchase materials on the basis of production needs rather than plan stipulations.

MARKETS

Significant expansion of the market mechanism is an essential component of an industrial strategy that encourages firms to increase the pace of self-directed, profit-seeking innovation and allows them to expend retained earnings as they see fit. A logical extension of these changes would replace most mandatory plans with indicative targets that allow greater leeway for most units to determine their own output mix, purchase or dispose of materials, equipment and labor, and sell their products. Official policy is now moving in this direction. Even before the latest pronouncements, however, market activity had expanded significantly. Firms sell many products directly to end users and procure materials through a variety of market mechanisms. There are emergent markets for capital, foreign exchange, specialized labor, technology, research services, project design and construction in which buyers and sellers can, to varying degrees, negotiate mutually satisfactory agreements and sign contracts that are enforced through the newly established economic courts.

PRICES

Economic theory links the existence of flexible and responsive prices with the pursuit of static and dynamic efficiency. In China, where prices have long been neither flexible nor responsive to changes in relative scarcity, we see many examples of inefficiency stemming from defects in the price system. Enterprises make liberal use of capital obtained via costless grants of investment funds. Power plants burn scarce oil rather than abundant coal and allow heat to escape because the prices of oil and steam are too low. There are many other examples showing how price changes could produce substantial efficiency gains.

Chinese price reform began in the late 1970s amid much enthusiasm. The initial experience of reform revealed its potentially high costs and led to a sharp reversal of original reform plans. Despite the retreat from comprehensive price reform, important changes have occurred. The traditional zero price attached to investment funds, perhaps the most flagrant deviation from scarcity pricing, has given way to increasing reliance on interest-bearing loans to finance new projects and user taxes to reflect the scarcity value of existing resources and facilities. China's currency has been effectively devalued relative to the U.S. dollar. A major restructuring of textile prices has slashed the cost of overstocked synthetics and raised prices for cotton goods. Interest rates have risen. Firms that require excessive amounts of fuel or bank loans now face penalty charges. Certain manufactures can be sold for whatever the market will bear; prices of some others fluctuate within officially-sanctioned limits.

Changes in price policy are only part of a more general relaxation of controls over information flows that is essential to successful substitution of market mechanisms for bureaucratic allocation of resources. Publication of market intelligence, improved communications, expanded facilities for monetary transfers and loosening of restrictions on domestic travel are only several of the many changes needed to permit industrial enterprises to take full advantage of recent and pending reforms.

INITIAL RESULTS AND FUTURE PROSPECTS

What can be said about the impact of these changes on industrial performance? With a wide range of reforms implemented with varying degrees of enthusiasm and thoroughness in different ministries, sectors and localities, it is natural to find substantial disagreement among observers who seek to judge the past and probable future effect of current and projected changes to China's industrial system.

There can be no doubt of a remarkable change in atmosphere within the industrial sector. Reform efforts have clearly begun to tap the latent potential of industrial units. There is new emphasis on financial performance, customer service, salesmanship and technical change, and a new willingness to consider independent action rather than awaiting instructions from organizational superiors. The rich anecdotal materials available from Chinese publications and visitor accounts include voluminous evidence of the beneficial effects of profit sharing, productivity-linked bonuses, bank financing of investment projects and other new policies. But we also see instances in which independent action in the absence of a full panoply of reforms has reduced rather than increased efficiency, an outcome stressed by Christine Wong.

The scale of industrial activity necessitates reference to overall performance data rather than anecdotal material to determine the impact of reform on industrial activity. Examination of available data suggests that reform efforts have not yet generated significant changes in behavior patterns. Output growth has continued at the previous long-term rate of approximately ten percent. Total factor productivity shows no significant upward trend and remains near or perhaps below levels attained during the mid-1950s. Despite the new profit-sharing arrangements and a shift toward relatively profitable consumer manufactures, Field's data (see his Tables 3, 12, and 13) show an 8 percent drop in profit and tax per yuan of industrial output between 1978 and 1983. The impression conveyed by a review of aggregate data is that the desired transition from "extensive" to "intensive" growth has hardly begun.

The Chinese, however, are themselves far from content with the results of initial reform efforts. Further initiatives announced in the fall and winter of 1984, if implemented, may carry China beyond even the Hungarian industrial reforms. In appraising the potential of reform policies for altering enterprise operations, it is essential to recognize that not all of the shortcomings identified by Chinese and foreign critics need be remedied. Even the most innovative economies are riddled with unsuitable relative prices, excessive job security, organizational rigidities and other problems encountered in Chinese industry. What China's industrial sector requires is a set of incentives that encourage a substantial number of firms to pursue profitable innovations; marketing and fiscal arrangements that permit successful innovators to retain a large share of the earnings flowing from their efforts; and a political system that forces less successful firms and their employees to suffer significant financial penalties in consequence of their failure to innovate.

Sweeping reform of all enterprises may not be required to improve overall results. Just as deregulation of the United States economy has forced giant oligopolists to alter their behavior merely by allowing tiny newcomers to offer innovative products to consumers in the airline, express and telecommunications industries, reforms that allow relatively small numbers of Chinese entrepreneurs to disrupt the comfortable security of long-established enterprises may ignite changes with far greater consequences than could be obtained by direct governmental intervention. Rapid expansion of collective industry and the increased prevalence of competition between producers from different provinces (e.g. Shanghai and Kiangsu) contain elements of this very type of rivalry.

Even these limited requirements, however, will not be easy to fulfill. They conflict to varying degrees with the fiscal needs of the state, with socialist traditions of tapping strong organizations to maintain income and benefit levels elsewhere, with the desire of party and government administrators to maintain personal and organizational power, and with the quintessentially Chinese concern for the preservation of order and avoidance of the confusion or chaos *(luan)* that arises from unfettered market activity. At the same time, China's present leaders seem exceptionally determined to obtain the benefits of reform, even at the cost of eroding traditional socialist values.

Whether these obstacles can be surmounted and whether ongoing governmental reform efforts will prove sufficiently strong to bring about a transition from "extensive" to "intensive" or productivity-led growth in China's industrial sector is a question whose answer must await the passage of time. All that can be said from the perspective of early 1985 is that the chances of success appear greater now than at any time since the beginning of China's most recent campaign of industrial reform.

TRANSPORTATION

I conclude this overview with brief comments on transportation, a vital topic for which we are unable to include an appropriately detailed analysis. China is a nation of continental dimensions. As such, transport is obviously a key link in her national economy. For most of the period since 1949, transport investment has occupied a low priority in the calculations of China's investment planners. The result is a chronically overburdened transport system that inflicts expensive delays on other sectors and forces many enterprises to maintain large inventories in anticipation of delivery problems.

Neither the scale of transport activity nor the consequences of inadequate transport facilities can be determined with any degree of precision. Christine Wong notes that available statistics of highway traffic understate actual activity levels, perhaps by a large margin. The same is probably true of information on domestic water carriage, which may exclude the contribution of sailing craft. The most reliable data, those for railway traffic, show a gradual decline in the growth of freight carriage and in the construction of new track.

The future demand for transport services is also difficult to project. On the one hand, we see an economy gradually emerging from a long period of artificial restraint on both local and long-distance commodity trade. Pursuit of regional comparative advantage can be expected to release massive pent-up demand for transportation. At the same time, rigid prices have insulated domestic users from changes in world energy markets that have compelled manufacturers in other nations to significantly reduce the energy content of industrial products. Unit energy consumption in industry is far greater in China than in any other major industrial nation. A restructuring of energy prices that encouraged energy producers to upgrade product quality (e.g. by washing coal to remove rocks, dirt and other impurities) and forced consumers to pursue energy savings could reduce shipments of coal, the largest component of Chinese railway freight. Discovery of commercially viable deposits of offshore oil or development of a significant nuclear power program would have similar effects on overall transport demand.

At present, our best guess must be that the forces inclining toward rapid growth in transport demand will predominate, especially in the near term. With localities in control of a substantial portion of investment funds, the probability of major increases in the share of investment outlays devoted to transportation remains small. Accordingly, it seems likely that transportation will continue to act as a serious constraint on the development of China's economy for the remainder of the present century.

CHINA: THE CHANGING STRUCTURE OF INDUSTRY

By Robert Michael Field*

CONTENTS

Page
I. Summary ... 505
II. Measuring the Real Growth of Chinese Industry ... 509
III. Growth and Structural Change ... 514
  A. Structure by Branch of Industry ... 514
  B. Structure by Form of Ownership ... 521
  C. Structure by Geographic Region ... 524
IV. Current Reforms ... 528

APPENDIXES

A. Official Data Available on the Gross Value of Industrial Output ... 536
B. Estimation of Missing Gross Value of Industrial Output Data and Price Indexes by Branch of Industry. ... 539
C. Discussion of Conflicting Official Output Indexes ... 543
D. Estimation of Price Indexes for State-Owned and for All Other Industrial Enterprises ... 545

I. SUMMARY

The decision of the 3rd Plenum of the 11th Party Central Committee in December 1978 marked a turning-point in the economic development of China. The high but erratic rate of growth in Chinese industry since 1949 had been achieved by using ever increasing amounts of labor and capital. Not only was the economy operating inefficiently, but the industrial output mix was inappropriate and inventories had accumulated to very high levels. However, the true state of affairs had been obscured by the political turmoil and virtual disbanding of the State Statistical Bureau during the previous decade.

The accuracy of official Chinese statistics has varied widely in the 35 years since the establishment of the People's Republic. From 1949 through 1957, the new government made a serious effort to build a comprehensive statistical reporting system and to improve the quality of the data it collected. The quality of the data for the early and mid-1950s vary by sector of the economy and type of statistic. Data on industrial production are among the best in this period and are probably reasonably accurate.

For the 20 years between 1958 and 1977, the statistical system was disrupted, first by the Leap Forward (1958–1960), and then by the Cultural Revolution (1966–1976). During the Leap Forward, statistics were used for political purposes and greatly exaggerated actual achievements. And as soon as the statistical system had begun to recover from the Leap Forward, the Cultural Revolution erupted. During most of those 10 years, the State Statistical Bureau (SSB) was barely able to function, and the data it produced were not very reliable. In fact, for a period of two years, the Bureau was down to only 14 employees.

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Since the end of the Cultural Revolution, however, the SSB has been rebuilt, and the quantity and quality of its data have been growing rapidly. In addition, the SSB has devoted considerable effort to reconstructing the statistics that were judged not to be reliable or that were not compiled during the previous 20 years. As a result, the statistical yearbooks for 1983 and 1984 contain a large number of complete—or nearly complete—series for the years since 1949. The accuracy of these officially reconstructed series is hard to judge, especially for the years when the statistical system was weakest. For example, the production of coal in 1959 is now reported to have been 369 million tons—which is even higher than the claim of 348 million tons that was made in 1960 at the height of the Leap Forward.

Although the data for the years through 1957 and for 1978 to date are probably tolerably accurate, the way the Chinese calculate long-term growth from their constant price data is open to question. For example, the official index for the gross value of industrial output (GVIO) for 1983 (with 1952=100) is 2,340.1 whereas a standard Lasperyres output index based on data for 13 branches of industry in 1980 constant prices yields 1,807.9.

The source of the discrepancy lies in the formula used by the Chinese to measure growth over long periods. The Chinese have used four sets of constant prices to measure GVIO in four separate periods, each of which overlap by one year. For example, GVIO for 1957 is calculated in both 1952 and 1957 constant prices. When the GVIO for 1952 in 1952 constant prices (as it was originally reported) is converted to 1980 constant prices, three price indexes are used. These price indexes are calculated from the output data for the three years for which the data overlap and thus reflect the structure of industry in those years rather than in 1952. For this reason, the measurements throughout the paper are based on independent calculations from the most detailed data available.

The rate of growth, which has averaged 9.8 percent for the period 1952-1983, has been rapid by any standard. However, growth has fluctuated widely period by period. During the First Five-Year Plan period (1953-1957), industrial growth averaged 16.1 percent, reflecting both recovery from war and civil strife and the institution of orderly economic planning. During the Second Five-Year Plan period (1958-1962), which included a surge in output during the Leap Forward and a subsequent collapse, growth averaged only 2.8 percent. With the recovery that followed, growth averaged 16.3 percent from 1963 to 1965, but then the Cultural Revolution broke out. The period of the Cultural Revolution corresponds roughly to the Third and Fourth Five-Year Plan periods (1966-1970 and 1971-1975), when industry grew at an average annual rate of 10.1 percent and 8.7 percent respectively. these averages, however, conceal the declines in output during 1967 and 1968—the most disruptive phase of the Cultural Revolution—and the failure to grow in 1974—the year of the campaign to criticize Lin Biao. Following the death of Chairman Mao and the purge of the Gang of Four in the fall of 1976, industry once again entered a period of recovery.

The growth of output of 1952 through 1978 is generally characterized by extremely rapid growth and by falling prices in those branches of industry that produced heavy industrial goods—except for coal and timber, both of which have posed chronic problems for the government—and by slower growth and rising prices in light industry. The period is also characterized by relatively even growth rates in state and collective industry—after an initial collectivization drive that nearly eliminated individual industry by 1957—and relatively rapid rates of growth in the central and western portions of the country compared with slower rates of growth in the more highly industrialized coastal areas.

Growth has averaged 7.9 percent since the 3rd Plenum of the 11th Party Central Committee met in December 1978, but the nature of the growth has been different from that of the preceding 26 years. As the statistical system was restored, it began to produce data on employment, capital stock, the use of fuels and raw materials, and so forth that made the deficienies in industry increasingly clear. By December 1978 the Party leadership understood the economic problems well enough to endorse a strategic shift in economic policy. Since then they have undertaken a bewildering variety of experiments and reforms, beginning on an extremely small scale—primarily in Sichuan—and then spreading rapidly throughout the country. These reforms gave an increasing number of managers more authority to plan and market their output, the right to retain a larger share of their profits, and the freedom to make some decisions on investment in new capacity.

These reforms have resulted in a remarkable change in the composition of output but have only just begun to affect the efficiency with which industry operates. From 1958 to 1978, every branch of heavy industry (except coal and timber) grew faster than the fastest growing branch of light industry, whereas from 1979 to 1983, only chemicals, machinery, and building materials grew faster than the slowest growing branch of light industry. One unintended result of the reforms, however, has been the stimulation of excessive investment demand. The reforms have placed increasing amounts of money in the hands of enterprise managers, and despite elaborate rules restricting what they are allowed to do with the funds many have invested heavily in new plant and equipment.

The pace of reform has continued to be rapid. One recent development has been a drive to eliminate substantial financial losses at state-operated enterprises. Enterprises operating in the red have been reduced from 26.1 percent of all enterprises in 1982 to 15.8 percent in 1983 and further reduced in 1984. In fact, it may have been this drive that caused the productivity of labor to rise 7.5 percent in 1983 and 8.5 percent in the first 11 months of 1984.

A second major development has been the substitution of an income tax for the remission of profit to the state budget by state-operated enterprises. The purpose of the change was to sever the bureaucratic relationship between enterprises and the various ministries and industrial bureaus. Because the amount to be remitted to the state had to be negotiated, some enterprises were able to extract special advantages and others suffered undue bureaucratic interference. The state hopes the new arrangement will force enterprises in different industries to compete under roughly equal conditions.

Perhaps the most important event to date is the decision made by the 3rd Plenum of the 12th Party Central Committee on October 20, 1984. The Plenum reflected a leadership consensus that China must further invigorate an urban economy which has been stifled by a rigid economic system. The decision characterized the major defects of the system as: (a) the lack of a clear distinction between the functions of governmental institutions and those of the enterprise; (b) the existence of administrative barriers that separate the various ministries and geographic regions; (c) the overly tight control of enterprises by the state; (d) the little use of the market; and (e) an overemphasis on an egalitarian distribution of income.

The major thrust of the reform—which is to ensure social stability, to raise output, to improve standards of living and to increase state revenue—is to make enterprises relatively independent economic entities that are responsible for their own profit and loss and to link incomes with job performance. This involves a whole range of specific reforms—including the reform of planning, commodity pricing, economic management by state institutions, and the labor and wage system—each of which is a complex task.

Several points should be made about the decision of the 3rd Plenum. First, it is a unique document in the history of economic reform: Nothing similar has appeared in the Soviet Union or Eastern Europe. Second, it is a statement of intent rather than a new call for reform. In fact, it is a comprehensive summary of reforms that have been planned, debated, and in some cases, undertaken in the last six years. Third, it does not advocate a free market system. It reserves for the government a strong role in planning and guiding the economy and in setting prices or price ranges.

The decision is important because it is a strong, high-level political endorsement of the reforms undertaken since the 3rd Plenum of the 11th Party Central Committee in 1978. The endorsement makes it much more likely that the reforms will result in the far-ranging changes necessary to modernize industry and the economy as a whole. Nevertheless, their ultimate success will depend on the willingness of the Party and the government to accept voluntarily some limit on their political power. But how far will the Party and state bureaucracies be willing to let the market go? Will they accept unplanned changes in output, fluctuation in prices, or the establishment of markets for labor and capital? If not, China will not be able to make a transition to some form of market socialism but will most likely remain a centrally planned, administratively controlled, and relatively inefficient economy.

II. MEASURING THE REAL GROWTH OF CHINESE INDUSTRY[1]

NOTE.—This section examines the official Chinese measure of growth. Those readers not interested in index number methodology may skip directly to an analysis of growth and structural change in Section III.

The purpose of measuring real growth is to show the change in the physical output of all or some sectors of an economy. Because tons of steel cannot be added to cubic meters of timber, or tons of flour to square meters of cotton cloth, prices must be used to measure the level of output; yet prices of individual commodities rise and fall at different rates. A comparison of the levels of output in different years, thus requires the use of constant prices. The way the Chinese calculate the long-term rate of growth from their constant price data, however, is open to question.

The Chinese have used four sets of constant prices to measure the gross value of industrial output (GVIO) since 1949. The official data are in (a) 1952 constant prices for the years 1949 through 1957; (b) 1957 constant prices for the years 1957 through 1971; (c) 1970 constant prices for the years 1971 through 1981; and (d) 1980 constant prices for the years since 1981. To measure growth over longer periods, the Chinese first convert these constant price data to a "comparable price" (*kebi jiage*) basis and then calculate output indexes.

The formula used by the Chinese to convert the 1952 GVIO from 1952 to 1980 constant prices is as follows:[2]

$$
\begin{aligned}
&\text{1952 GVIO in 1980 constant prices} \\
&= \text{1952 GVIO in 1952 constant prices} \\
&\times \frac{\text{1957 GVIO in 1957 constant prices}}{\text{1957 GVIO in 1952 constant prices}} \\
&\times \frac{\text{1971 GVIO in 1970 constant prices}}{\text{1971 GVIO in 1957 constant prices}} \\
&\times \frac{\text{1981 GVIO in 1980 constant prices}}{\text{1981 GVIO in 1970 constant prices}}
\end{aligned}
$$

When rewritten in symbols, the formula is as follows:

$$\sum P_{80}Q_{52} = \left(\sum P_{52}Q_{52}\right)\left(\frac{\sum P_{57}Q_{57}}{\sum P_{52}Q_{57}}\right)\left(\frac{\sum P_{70}Q_{71}}{\sum P_{57}Q_{71}}\right)\left(\frac{\sum P_{80}Q_{81}}{\sum P_{70}Q_{81}}\right)$$

where P stands for price and Q for the physical quantity of output. The first term on the right-hand side is the reported value for 1952 in 1952 constant prices and the other three terms are prices indexes. Note that the set of quantity weights for the three price indexes come from the years 1957, 1971 and 1981, respectively. The GVIO for 1952 in million 1980 constant yuan based on the formula given above and the data in Table 1 is 26,369 million yuan, and the 1983 output index is the reported GVIO for 1983 in 1980 constant prices divided by the figure derived above for 1952 in 1980 constant prices. The calculation is as follows:

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[1] This analysis was first presented at the Sino-American Economic and Management Symposium held at Nankai University, Tianjin, on September 3-5, 1983, in a paper by Robert Michael Field entitled "Real Growth: A Comparison of the Chinese and U.S. Methods of Measurement".

[2] *Tongji*, No. 5, 1982, p. 14.

$$\frac{616{,}441}{26{,}369} \times 100 = 2{,}337.7$$

The difference between this and 2,340.1 (the officially reported index number) is only than 0.1 percent and is probably due to rounding at various stages in the calculations.

TABLE 1.—CHINA: GROSS VALUE OF INDUSTRIAL OUTPUT, BY LIGHT AND HEAVY INDUSTRY, SELECTED YEARS, 1952–1983

[In millions of yuan]

	1952	1957	1971	1981	1983
Total:					
1952 constant prices	34,326	78,386			
1957 constant prices		70,400	278,220		
1970 constant prices			238,940	519,883	
1980 constant prices				517,767	616,441
Light industry:					
1952 constant prices	22,107	40,448			
1957 constant prices		37,400	111,910		
1970 constant prices			102,320	267,470	
1980 constant prices				266,289	305,974
Heavy industry:					
1952 constant prices	12,219	37,938			
1957 constant prices		33,000	166,310		
1970 constant prices			136,620	252,413	
1980 constant prices				251,478	310,467

Note.—The total is given by the Chinese to 5 significant digits whereas light and heavy industry are only given to 4 significant digits. The values for light and heavy industry in 1971 in both 1957 and 1970 constant prices used here are forced to equal the total.

Sources:

1952 constant prices: *Zhonghua renmin gonghoguo shinian caijeng ti weida chengjiu* (Great Achievements in Public Finance in the People's Republic of China in the Last Decade), Beijing, 1959, p. 229.

1957 constant prices: State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1984, pp. 214–217.

1970 constant prices: 1971: Ibid. 1981: State Statistical Bureau, Statistical Yearbook of China, 1981, Hong Kong, 1982, p. 212.

1980 constant prices: 1981: State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1983, p. 222.

1983: State Statistical Bureau, Statistical Yearbook of China, 1984, Beijing, 1984, p. 201.

Unfortunately, the sum of the values for individual components that are each derived by this method is not the same as the value that is derived when the method is applied directly to the total. The gross values of all industry and of light and heavy industry for 1952 in 1980 constant yuan that are derived by this method are as follows:

Total	26,369
Light industry	18,607
Heavy industry	8,699

The values of light and heavy industry sum to 27,306 million yuan, which is 3.6 percent higher than the value for all industry when it is calculated directly. And the discrepancy is even larger when the method is applied to individual branches of industry. Summing the values for 13 branches of industry yields 34,098 million yuan, which is nearly a third higher.[3] These differences are due to the fact that the price indexes used to deflate the output data are not the same, and the price indexes are not the same because the weights are drawn from different years.

To explain the discrepancy shown above, I will use data for the period 1957 to 1981, which involves only two sets of constant prices—for 1957 and 1970— rather than four, and I will treat light and heavy industry as homogeneous commodities so that the prices for light and heavy industry are the prices per unit of light and heavy industrial output, respectively. The official formula for GVIO in 1957 measured in 1970 constant prices is:

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[3] See Table 2.

$$\sum P_{70}Q_{57} = \left(\sum P_{57}Q_{57}\right)\left(\frac{\sum P_{70}Q_{71}}{\sum P_{57}Q_{71}}\right)$$

or in price relative form is:

$$\sum P_{70}Q_{57} = \left(\sum P_{57}Q_{57}\right)\left(\frac{\sum P_{57}Q_{71}\left(\frac{P_{70}}{P_{57}}\right)}{\sum P_{57}Q_{71}}\right)$$

Disaggregating into two sectors yields:

$$\sum P_{70}Q_{57} = \left(\sum P_{57}Q_{57}\right)\left(\frac{L_{71}\left(\frac{P_{70}}{P_{57}}\right)_l + H_{71}\left(\frac{P_{70}}{P_{57}}\right)_h}{L_{71} + H_{71}}\right)$$

where L and H stand for gross value of light and heavy industry valued in 1957 constant prices, respectively. The price relatives calculated from the data in Table 1 are:

$$\left(\frac{P_{70}}{P_{57}}\right)_l = \frac{102,320}{111,910} = 0.9143$$

and

$$\left(\frac{P_{70}}{P_{57}}\right)_h = \frac{136,620}{166,310} = 0.8215$$

Substituting these values into the formula given above yields:

$$\begin{aligned}\sum P_{70}Q_{57} &= (34,326)\left(\frac{(111,910)(0.9143) + (166,310)(0.8215)}{111,910 + 166,310}\right)\\ &= (34,326)(0.8588)\\ &= 24,479\end{aligned}$$

Paasche price index methodology calls for the use of a price index with weights from the year to which the output data applies. In this example, to change 1957 output from 1957 to 1970 constant prices, the weights for the price index should be from 1957. The formula in price relative form is:

$$\sum P_{70}Q_{57} = \left(\sum P_{57}Q_{57}\right)\left(\frac{L_{57}\left(\frac{P_{70}}{P_{57}}\right)_l + H_{57}\left(\frac{P_{70}}{P_{57}}\right)_h}{L_{57} + H_{57}}\right)$$

which yields:

$$\begin{aligned}\sum P_{57}Q_{71} &= (34,326)\left(\frac{(37,400)(0.9143) + (33,000)(0.8215)}{37,400 + 33,000}\right)\\ &= (34,326)(0.9143)\\ &= 31,384\end{aligned}$$

This result is considerably different from 29,479 million yuan. And the output index for 1981 (with 1957=100) is:

$$\frac{519,883}{31,384} \times 100 = 1,656.6$$

which is lower than the official index.

The two values for 1957 in constant 1970 prices and the two output indexes are different because of the price indexes used to deflate the reported gross value in 1957 constant prices, and the price indexes are different because the weights are not drawn from the same years. The two sets of weights are as follows:

	1957		1971	
	Million 1957 yuan	Share (percent)	Million 1957 yuan	Share (percent)
Total	70,400	100.0	278,220	100.0
Light industry	37,400	53.1	102,320	40.2
Heavy industry	33,000	46.9	136,620	59.8

Because the price relative for heavy industry (0.8215)—which is lower than the price relative for light industry (0.9143)—is given a greater weight in the official price index (59.8) than in the index calculated by the standard method (46.9), the official price index is lower than the standard price index and the official output index higher than standard output index. The official output index is not higher than the standard index because of the difference between the index number methodologies, but rather because the weights for the official index are drawn from a later year (1971) than the weights for the standard index (1957) and because the prices of rapidly growing commodities tend to decline relative to the prices of commodities that are growing more slowly.

Please note the example—which only uses two sectors—is to illustrate the methodological deficiency of the "comparable price" methodology. When the calculations are carried out with 13 branches of industry, the price index is 98.5 compared with 85.9, the official price index.[4]

Without the data necessary to calculate proper price indexes, I have applied the Chinese comparable price methodology to branches of industry, the most disaggregated grouping for which I have data, and derived the total as the sum of the values for the branches. The reported GVIO data and output indexes are presented and discussed in Appendix A, and the procedure used to estimate missing GVIO data and the price indexes for individual branches of industry in the absence of data for 1971 is detailed in Appendix B.

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[4] Derived from the data for 1971 in 1957 and 1970 constant prices in Table 5.

III. Growth and Structural Change

The accuracy of the official Chinese economic statistics has varied widely in the 35 years since the establishment of the People's Republic. From 1949 through 1957, the new government made a serious effort to build a comprehensive statistical reporting system and to improve the quality of the data collected.[5] The quality of the data for the early and mid-1950s vary by sector of the economy and by type of statistic. Data on industrial production are among the best in this period and are probably reasonably accurate.

For the 20 years between 1958 and 1977, the statistical system was disruputed first by the Leap Forward (1958–1960), and then by the Cultural Revolution (1966–1976). During the Leap Forward, statistics were used for political purposes and greatly exaggerated actual achievements.[6] For example, the output of coal was claimed to have risen from 131 million tons in 1957 to an incredible 348 million tons in 1959.[7] And as soon as the statistical system had begun to recover from the Leap Forward, the Cultural Revolution erupted. During most of those 10 years, the State Statistical Bureau (SSB) was barely able to function, and the data it produced were not very reliable. In fact, for a period of two years, the Bureau was down to only 14 employees.

Since the end of the Cultural Revolution, however, the SSB has been rebuilt, and the quantity and quality of its data have been growing rapidly. In addition, the SSB has devoted considerable effort to reconstructing the statistics that were judged not to be reliable or that were not compiled during the previous 20 years. As a result, the statistical yearbooks for 1983 and 1984 contain a large number of complete—or nearly complete—series for the years since 1949 [8] The accuracy of these officially reconstructed series is hard to judge, especially for the years when the statistical system was weakest. For example, the production of coal in 1959 is now reported to have been 369 million tons [9] which is even higher than the claim made in 1960 at the height of the Leap Forward.

In summary, the data for the years through 1957 and for 1978 to date are probably tolerably accurate and allow the calculation of reasonable long-term growth rates. Although the data for intervening years may not give much more than the order of magnitude, the pattern of development is nevertheless interesting to examine.

A. STRUCTURE BY BRANCH OF INDUSTRY

Estimate of the gross value of industrial output in 1980 constant prices for selected years from 1952 to 1983 a[illegible] presented in Table 2. The rate of growth, which has averaged 9.[illegible] percent for the entire 31-year period, has been rapid by [illegible] However, growth has fluctuated widely period by period. During the First Five-Year Plan period (1953–1957), industrial growth averaged 16.1 percent. This growth reflects both recovery from war and civil strife and the institution of orderly economic planning. During the Second Five-Year Plan period (1958–1962), which include a surge in output during the Leap Forward and a subsequent collapse, growth averaged only 2.8 percent. With the recovery that followed, growth averaged 16.3 percent from 1963 to 1965, but then the Cultural Revolution broke out. The period of the Cultural Revolution corresponds roughly to the Third and Fourth Five-Year Plan periods (1966–1970 and 1971–1975), when industry grew at an average annual rate of 10.1 percent and 8.7 percent, respectively. These averages, however, conceal the declines in output during 1967 and 1968—the most disruptive phase of the Cultural Revolution—and the failure to grow in 1974—the year of the campaign to critize Lin Biao.

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[5] See Choh-ming Li, *The Statistical System of Communist* [illegible] 1962.

[6] Choh-ming Li, "Statistics and Planning at the [illegible] *Quarterly*, No. 9, 1962, pp. 121–123.

[7] Choh-ming Li *The Statistical System of Comm*[illegible] Angeles, 1962, p. 100.

[8] See, for example, State Statistical Bureau, *Zhongguo ton*[illegible] jing, 1984.

[9] *Op. Cit.*, p. 225.

TABLE 2.—CHINA: GROSS VALUE OF INDUSTRIAL OUTPUT, BY BRANCH OF INDUSTRY, SELECTED YEARS, 1952–1983

[In million of 1980 yuans]

	1952	1957	1962	1965	1970	1975	1977	1978	1979	1980	1981	1982	1983
Total	34,098	72,062	82,703	130,227	211,013	320,904	369,975	421,222	457,108	489,868	517,767	557,745	616,441
Metallurgy	1,797	6,429	9,184	16,020	24,434	31,688	31,968	40,594	45,158	47,348	45,669	48,523	52,368
of which:													
Ferrous metals	1,188	4,474	5,976	11,422	16,361	21,646	...	28,691	32,066	33,392	31,378	33,728	36,478
Nonferrous metals	610	1,955	3,208	4,598	8,073	10,042	...	11,975	13,092	13,955	14,291	14,795	15,890
Electricity	464	1,176	3,016	4,333	7,465	12,520	14,192	16,207	17,743	18,914	19,846	20,707	22,023
Coal	1,530	3,375	5,884	5,895	8,980	11,670	13,376	15,157	15,316	14,783	14,626	15,514	16,664
Petroleum:													
A	193	794	2,165	4,477	10,460	20,673	26,077						
B							23,709	26,824	28,696	29,011	28,213	28,798	31,009
Chemicals:													
A	625	2,433	4,764	9,058	20,148	33,098	38,473						
B							40,347	47,673	51,021	56,511	59,143	65,901	74,114
Machinery	2,073	7,603	10,967	19,818	41,362	78,430	91,337	101,761	109,633	112,174	107,995	122,506	144,048
Building materials	921	2,289	1,815	3,992	6,256	10,782	14,382	16,601	18,047	19,579	19,507	22,258	24,544
Timber	3,056	5,810	4,521	5,712	5,200	7,441	8,522	9,425	10,318	10,550	10,490	11,225	11,606
Food	10,475	19,434	17,836	24,656	27,783	41,618	46,968	50,846	55,913	61,222	69,012	75,552	79,425
Textiles	9,313	14,072	11,942	21,626	31,783	39,052	45,515	52,163	58,470	72,504	85,602	86,685	95,604
Paper	734	1,758	1,986	2,796	3,283	4,489	5,153	5,836	6,537	6,953	6,940	7,396	8,141
Other	2,916	6,890	8,623	11,845	23,860	29,443	35,606	38,135	40,256	40,321	51,084	52,680	56,895

Note.—Derived from the data in appendix A by the method described in appendix B.

516

Following the death of Chairman Mao and the purge of the Gang of Four in the fall of 1976, industry once again entered a period of recovery. Since the 3rd Plenum of the 11th Party Central Committee met in December 1978, growth has averaged 7.9 percent. The nature of growth in the last six years will be examined in Section IV.

The pattern of growth by branch of industry is also of interest. Every branch whose output is classified primarily as heavy industry[10] grew faster than industry as a whole, except for coal and timber. These two branches, in which investment has been neglected and productivity is low, have posed chronic problems to the government. At the other extreme, the petroleum industry has grown extraordinarily rapidly, especially since the discovery and exploitation of large quantities of oil in Northeast and North China in the early 1960s. The next most rapid growth has been shown by chemicals and machinery, both of which were infant industries in the 1950s.

In contrast to heavy industry, those branches classified primarily as light industry [11] grew more slowly, except for other industry. The data for other industry, however, are probably less accurate than for any other branch they are a residual that is composed of several relatively minor branches [12] for which separate figures are not available prior to 1978.

This pattern reflects the high priority that the government assigned to heavy industry from 1949 through 1978. The bulk of investment was concentrated in heavy industry, its technology was relatively the most advanced, and more and better qualified engineers and technicians were routinely assigned to its branches. The productivity of labor in every branch of heavy industry—except coal and timber—has grown faster than in any branch of light industry.[13]

The output data in 1980 prices in Table 2 are estimated from the official data in Appendix A that are valued in the official constant prices used during four separate subperiods and the price indexes that are derived by the method described in Appendix B. The price index presented in Table 3, which is derived from the gross value of industrial output in current and 1980 constant prices, ranges from a high of 108.7 in 1962 to a low of 94.3 in 1978. For a developing country this degree of price stability over a period of 31 years is unprecedented.

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[10] Metallurgy, electricity, coal, petroleum, machinery, building, materials, and timber.

[11] Food, textiles, paper, and other.

[12] Coke and coke chemistry, clothing, leather, cultural and educational articles other than paper, and "other" as officially defined.

[13] State Statistical Bureau, *Statistical Yearbook of China, 1984*, Beijing, 1984, p. 270

TABLE 3.—CHINA: ESTIMATED PRICE INDEX FOR THE GROSS VALUE OF INDUSTRIAL OUTPUT, SELECTED YEARS, 1952–1983

	Gross value of output				Price Index (1952 = 100)
	Current prices		1980 constant prices		
	Million yuan	Index (1952 = 100)	Million yuan	Index (1952 = 100)	
1952	34,900	100.0	34,098	100.0	100.0
1957	70,400	201.7	72,062	211.3	95.4
1962	92,000	263.6	82,703	242.5	108.7
1965	140,200	401.7	130,227	381.9	105.2
1970	208,000	596.0	211,013	618.8	96.3
1975	312,400	895.1	320,904	941.1	95.1
1978	406,700	1,165.3	421,222	1,235.3	94.3
1980	489,700	1,403.2	489,868	1,436.6	97.7
1983	608,800	1,744.4	616,441	1,807.9	96.5

Sources:
Current prices: State Statistical Bureau, Statistical Yearbook of China 1984, Beijing, 1984, p. 23.
1980 constant prices: Table 2.
Price index: Derived as the output index in current prices divided by the output index in 1980 constant prices.

As more and more data on the structure of Chinese industry have become available, it has become increasingly clear that the price stability for industry as a whole has concealed a considerable degree of change among the various branches of industry. Even though the price indexes for individual branches of industry shown in Table 4 range from an average decline of over 60 percent in chemicals to an increase of 84 percent in coal, the price changes are small compared with the changes in the rest of the world over the same three decades. In fuels, for example, the price of electric power and various petroleum products have risen less than 10 percent despite severe shortages—electric power throughout the period and petroleum products in the 1950s and now again in the 1980s. And even the price of coal, which has increased 84 percent, is still far too low.

In materials industries, prices declined by up to 10 percent, except for timber—which has been in chronically short supply. The price of timber increased 37 percent. By far the greatest declines in prices were in manfacturing and chemicals, where the prices declined an average of 47 percent and 63 percent since 1952. Both branches were infant industries in the 1950s with high average costs, and both have developed extremely rapidly. With the development of large numbers of new products and falling average costs, prices have dropped sharply.

In light industry, because of a strong desire to keep the cost of living from rising, prices have not been allowed to increase—expect in the food industry. And even here, the increases have been kept low through the massive use of subsidies. The 1980 price index for the food industry (with 1952 = 100) was 126 compared with an index for purchasing prices of farm products of 195.[14]

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[14] State Statistical Bureau, *Statistical Yearbook of China, 1983*, Hong Kong, 1983, p. 455.

TABLE 4.—ESTIMATED PRICE INDEXES BY BRANCH OF INDUSTRY

[1952 = 100]

	1952	1957	1970	1980
Ferrous metals	100.00	79.52	76.16	85.08
Nonferrous metals	100.00	90.67	91.81	97.52
Electric power	100.00	107.31	107.45	107.87
Coal	100.00	112.59	142.16	184.40
Petroleum	100.00	106.48	91.96	105.73
Chemicals	100.00	74.12	41.22	37.43
Machinery	100.00	83.15	60.32	53.12
Building materials	100.00	88.59	82.80	89.30
Timber	100.00	95.75	112.56	137.04
Food	100.00	90.07	117.36	126.51
Textiles	100.00	100.79	100.18	98.76
Paper	100.00	94.61	89.08	96.57
Other	100.00	90.23	82.49	81.94

Note.—Derived from the data in appendix A by the method described in appendix B.

In view of the remarkable price stability and the comments made above on the poor quality of the data on the gross value of industrial output in the 1960s and early 1970s, a few words need to be said about the nature of the price data and the accuracy of the price indexes. Industrial enterprises have to keep two sets of data on the ex-factory value of output—one based on the actual prices charged and one in constant prices drawn from an immense, multivolume catalog. The industrial sector has three types of current prices: (a) Prices fixed by the government; (b) Prices allowed to float within a range; and (c) free prices. Therefore, even though the current prices are those at which goods are sold, only the free prices reflect market forces.

The price indexes would appear to be relatively accurate. The change from 1952 to 1957 constant prices in 1957 and the change from 1970 to 1980 constant prices in 1981 were both made in years when the statistical system was functioning well. As enterprises had to report output in both sets of constant prices for those years, the price indexes for 1957 (with 1952 = 100) and 1980 (with 1970 = 100) should be relatively accurate. The key question, then, is about the change from 1957 to 1970 constant prices in 1971—a year in which the State Statistical Bureau was very weak indeed. The prices indexes for 1970 (with 1957 = 100), while less reliable than those for 1957 or 1980, are much more accurate than the data on the gross value of industrial output for 1971 precisely because enterprises had to report in both sets of prices. If output were overreported—or underreported—the data in 1957 and 1970 constant prices would be equally inaccurate, but the price index derived from them correct. The impact of inaccurate output data on the price indexes, therefore, would be only in overweighting or underweighting various components in the process of aggregation.

Even though the price changes have been small, they have had an impact on the rate of growth. Reported and estimated data on the gross value of industrial output in the 4 sets of constant prices used since 1949 are presented in Table 5, together with the indexes derived from them. For each subperiod, the official data are accepted as the best measure of the gross output valued at official ex-factory prices, and the indexes within the subperiods are accepted as the best measure of real growth. However, the long-term growth rates shown by the reported and official indexes are quite different because the estimated indexes are calculated from output data deflated by price indexes that reflect the actual structure in the given year whereas the official output index reflects the structure of output in 1957, 1971, and 1981.[15]

TABLE 5.—CHINA: REPORTED AND ESTIMATED DATA AND INDEXES FOR THE GROSS VALUE OF INDUSTRIAL OUTPUT, SELECTED YEARS, 1952–1980

	1952	1957	1962	1965	1970	1975	1978	1980	1983
Million yuan									
Reported:									
1952 prices	34,326	78,386							
1957 prices		70,400	85,020	139,390					
1970 prices					209,980	321,880	423,075	492,243	
1980 prices									616,441
Estimated:									
1952 prices	34,326	78,386	95,820	158,465	278,335	439,803	584,997	676,503	860,537
1957 prices	31,615	70,400	85,020	139,390	242,080	379,996	503,552	583,578	740,752
1970 prices	32,630	69,374	80,058	127,486	209,980	321,880	423,075	492,243	622,264
1980 prices	34,098	72,062	82,703	130,227	211,013	320,904	421,222	489,868	616,441
Indexes (1952 = 100)									
Reported	100.0	228.6	275.9	452.6	786.0	1,216.4	1,598.6	1,887.0	2,340.1
Estimated:									
1952 prices	100.0	228.3	279.1	461.6	810.9	1,281.3	1,704.2	1,970.8	2,507.0
1957 prices	100.0	222.7	268.9	440.9	765.7	1,201.9	1,592.8	1,845.9	2,343.0
1970 prices	100.0	212.6	245.4	390.7	643.5	986.5	1,296.6	1,508.6	1,907.0
1980 prices	100.0	211.3	242.5	381.9	618.8	941.1	1,235.3	1,436.6	1,807.9

Note.—The reported data and indexes are from appendix A; the estimated data and indexes are derived from the data in appendix A by the method described in appendix B.

The growth rate shown by each estimated index is lower than the growth rate shown by indexes based on prices for earlier years. But why should growth be lower for indexes calculated in prices for more recent years? A comparison of the shares of output in 1952 in both 1952 and 1980 constant prices and the 1983 output indexes that are shown in Table 6 explains the results. The price changes for six branches of industry[16] were small enough (± 10 percent) that their relative shares in 1952 were hardly affected when output was converted from 1952 to 1980 constant prices. An index for these six branches would be about the same in either set of prices, so they do not account for any of the differences between the aggregative indexes in 1952 and 1980 constant prices.

TABLE 6.—CHINA: STRUCTURE OF THE GROSS VALUE OF INDUSTRIAL OUTPUT IN 1952 AND 1980 PRICES

	1952				1983		1983 index (1952 = 100)
	1952 prices		1980 prices		Million 1980 yuan	Shares (percent)	
	Million yuan	Shares (percent)	Million yuan	Shares (percent)			
Total	34,326	100.0	34,098	100.0	616,441	100.0	1,807.9

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[15] For a detailed discussion of the methodological differences, see Section II.
[16] Metallurgy, electric power, petroleum, building materials, textiles, and paper.

TABLE 6.—CHINA: STRUCTURE OF THE GROSS VALUE OF INDUSTRIAL OUTPUT IN 1952 AND 1980 PRICES—Continued

	1952				1983		1983 index (1952 = 100)
	1952 prices		1980 prices				
	Million yuan	Shares (percent)	Million yuan	Shares (percent)	Million 1980 yuan	Shares (percent)	
Metallurgy	2,021	5.9	1,797	5.3	52,368	8.5	2,914.2
of which:							
Ferrous metals	1,396	4.1	1,188	3.5	36,478	5.9	3,070.5
Nonferrous metals	625	1.8	610	1.8	15,890	2.6	2,604.9
Electricity	430	1.3	464	1.4	22,023	3.6	4,746.3
Coal	830	2.4	1,530	4.5	16,664	2.7	1,089.2
Petroleum:							
A	183	.5	193	.6			17,672.0
B					31,009	5.0	
Chemicals:							
A	1,670	4.9	625	1.8			11,307.4
B					74,114	12.0	
Machinery	3,903	11.4	2,073	6.1	144,048	23.4	6,948.8
Building materials	1,032	3.0	921	2.7	24,544	4.0	2,664.9
Timber	2,230	6.5	3,056	9.0	11,606	1.9	379.8
Food	8,200	24.1	10,475	30.7	79,425	12.9	758.2
Textile	9,430	27.5	9,313	27.3	95,604	15.5	1,026.6
Paper	760	2.2	734	2.2	8,141	1.3	1,109.1
Other	3,558	10.4	2,916	8.6	56,895	9.2	1,951.1

Sources: Tables 4 and B3

The changes in relative shares and the relative growth rates for the remaining branches are as follows:

	Lower than average growth	Higher than average growth
Share in 1980 prices greater than share in 1952 prices	Coal, timber, food	
Share in 1980 prices less than share in 1952 prices		Chemicals, machinery, other

This tabulation makes it clear that the rate of growth measured in 1980 prices is lower than the rate of growth in 1952 prices because every branch for which prices increased enough to raise its share (and thus its weight in the aggregative index) grew at less than the average rate of growth and every branch for which prices decreased enough to lower its share (and thus reduce its weight in the aggregative index) grew at higher than the average rate of growth. That is, the prices of rapidly growing commodities tended to decline relative to the prices of commodities that were growing more slowly. Thus, the pattern of change that Professor Gerschenkron observed empirically in Europe and the Soviet Union appears to hold for China as well.

B. STRUCTURE BY FORM OF OWNERSHIP

Forms of ownership have changed dramatically since 1949. In the 1950s, the Chinese divided industrial activity into industry and handicrafts, the distinguishing characteristic being the number of workers. Individual artisans or employers with up to four apprentices or workers were classified under handicrafts, but the hiring of a fifth employee would transform them into capitalists and classified the activity as industry. In addition to this breakdown, enterprises were classified as state-operated, cooperative, joint-state private, or individual. In 1949, the state confiscated 2,677 large enterprises and organized 193 joint enterprises as an intermediate form of ownership designed to bring private enterpise under state control.[17]

Data on the gross value of industrial output classified according to the categories used in the 1950s are presented in Table 7. The 2,677 state-operated enterprises produced 3,683 million yuan, which is 26 percent of the total, or 1.4 million yuan per enterprise, in contrast to the 6,828 million yuan produced at 123,165 private enterprises, which is 49 percent of the total but only 55 thousand yuan per enterprise. On the average, state-operated produced 25 times the value of output produced at private enterprises.

TABLE 7.—CHINA: GROSS VALUE OF INDUSTRIAL OUTPUT BY OWERNSHIP CATEGORY USED IN THE 1950'S, 1949, 1952, AND 1957

[In millions of 1952 yuan]

	Total	State	Cooperative	Joint state-private	Private	Individual handicrafts
1949:						
Total	14,018	3,683	65	220	6,828	3,222
Industry	10,781	3,683	50	220	6,828	
Handicrafts	3,237		15			3,222
1952:						
Total	34,326	14,258	1,109	1,367	10,526	7,066
Industry	27,014	14,258	863	1,367	10,526	
Handicrafts	7,312		246			7,066
1957:						
Total	78,390	42,150	14,920	20,630	40	650
Industry	65,020	42,150	2,200	20,630	40	
Handicrafts	13,370		12,720			650

Sources:
1949 and 1952: State Statistical Bureau, Report on Fulfillment of the National Economic Plan of the People's Republic of China, with Statistical Summary, Beijing, 1956, pp. 24–25.
1957:
Total, Industry, and Handicrafts: State Statistical Bureau, Ten Great Years, Beijing, 1980, p. 16.
State, Cooperative, Joint States Private, Private and Individual Handicrafts: State Statistical Bureau, Zhongguo tongji zhaiyao, 1984, (Statistical Abstract of China, 1984), Beijing, 1984, p. 43.

With the rapid recovery from World War II and the civil war, output of every category of enterprise increased rapidly from 1949 to 1952 the socialization of industry was already under way in these early years of the new regime. Output at state-operated enterprises nearly quadrupled, at cooperative enterprises output was 16 times as large and at joint state-private enterprise 5 times as large; the output of private enterprises grew only 50 percent, and the output of individual handicrafts only doubled. The process of socialization accelerated during the First Five-Year Plan period; by 1957, private industry and individual handicrafts had been virtually eliminated. State-operated enterprises produced more than half of all industrial output, cooperative nearly 20 percent and joint state-private enterprises over one quarter.

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[17] Zhao Yiwen, *Xin zhongguo de kongye (The Industry of New China)*, Beijing, 1957, pp. 35 and 75.

Following the statistical blackout that started with the collapse of the Leap Forward in 1960, the publication of data on industrial output in these categories ceased, and when publication resumed in the late 1970s, a different classification system was used. Under this new system, the categories are ownership by the whole people (sometimes also referred to as state-owned), collective ownership, individual, and other.[18] The recently published data for the 1950s make it clear that ownership by the whole people includes what was formerly classified as state-operated, joint state-private, and private.[19] Collective ownership includes what was formerly classified as cooperative and the output of the commune-operated industrial enterprises that were first organized in 1958. Individual ownership includes what was classified as individual handicrafts in the 1950s and currently includes individual enterprises, which are allowed to employ up to 30 workers. The coverage of the category "other" is not known.

Data on the gross value of industrial output classified according to the categories in current use are presented in Table 8. Note that these data are valued in the official constant prices used during the respective subperiods and that the output data classified by form of ownership and branch of industry that is necessary to calculate real growth are available only for enterprises owned by the whole people in 1981, 1982, and 1983.

Because the earlier data cannot be converted to 1980 constant prices, the data for 1983 are converted to 1952 prices in Appendix D, and compared with the data for the 1950s in Table 9. Note that collective, individual and other is derived as the residual. The growth shown by the two categories is very close, but use of these broad categories conceals major changes in the structure of output by form of ownership. These changes have been great enough that they can be seen even without having all of the data in the same prices. First, individual artisans had all been organized into cooperatives by the end of the 1950s and since they reappeared in 1980, they have been a very minor part of industry; second, collectively owned enterprises have grown from a negligible share of industry to about one-fifth of total output; and third, commune-owned enterprises—which were first organized in 1958—now account for nearly one third of collective output.

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[18] The category "individual" is sometimes included in "other".

[19] The *Zhongguo tongji zhaiyao* (*State Statistical Abstract of China*), which is published by the State Statistical Bureau, gives the old categories and shows no output at joint state-private or private enterprises for any year since 1957. See the *Abstract* for 1983, p. 38 or for 1984, p. 43.

TABLE 8.—CHINA: GROSS VALUE OF INDUSTRIAL OUTPUT OF OWNERSHIP CATEGORIES IN CURRENT USE, SELECTED YEARS, 1952–1983

[In millions of yuans]

	Total	Ownership by the whole people	Collective ownership			Individual	Other
			Total	Commune	Other		
1952 prices:							
1952	34,326	26,151	1,109	9	1,109	7,066	0
1957	78,390	62,820	14,920	0	14,920	650	0
1957 prices:							
1957	70,400	56,640	...	0	...	...	0
1962	85,020	74,650	10,370	790	9,580	0	0
1965	139,390	125,550	13,840	530	13,310	0	0
1970	242,080	215,330	26,750	2,660	24,090	0	0
1971	278,220	245,530	32,690	3,770	28,920	0	0
1970 prices:							
1971	238,940	280,610	30,330	3,910	26,420	0	0
1975	321,880	267,860	54,020	8,680	45,340	0	0
1978	423,080	341,640	81,440	21,130	60,250	0	0
1979	459,070	371,980	87,090	23,370	63,720	0	0
1980	499,240	392,840	103,440	28,050	75,390	80	2,880
1981	519,880	402,770	113,130	30,980	82,150	...	...
1980 prices:							
1981	517,770	405,440	108,930	32,320	76,610	190	3,210
1982	557,750	434,030	119,280	35,430	83,850	340	4,100
1983	616,440	474,780	135,420	41,330	94,090	750	5,490

Sources:
1952 prices: Table 6.
1957, 1970, and 1980 prices:
State Statistical Bureau, Statistical Yearbook of China, 1983, Beijing, 1983, pp. 214–215.
State Statistical Bureau, Zhongguo tongji zhaiyao, 1984 (Statistical Abstract of China, 1984), Beijing, 1984, P. 49.

TABLE 9.—CHINA: GROSS VALUE OF INDUSTRIAL OUTPUT, BY FORM OF OWNERSHIP 1952, 1957, AND 1983

	Total	Ownership by the whole people	Collective, individual, and other
Million 1952 yuan:			
1952	34,326	26,151	8,173
1957	78,390	62,820	15,570
1983	860,537	651,809	208,728
Million 1980 yuan: 1983	616,441	474,778	141,663
Index (1952 = 100):			
1952	100.0	100.0	100.0
1957	228.4	240.2	190.5
1982	2,507.0	2,492.5	2,553.9

Sources: Table 7 and appendix D.

C. THE STRUCTURE BY GEOGRAPHIC REGION

In the 1950s, nearly two-thirds of Chinese industrial output was produced in East and Northeast China, especially in the Shanghai area (a major center of light industry) and Liaoning Province (a major center of heavy industry). With natural resources well dispersed, this inbalance was then, and until recently continued to be, a matter of great concern. The government undertook a phased policy of regional development, as follows: (1) expansion of existing industrial bases, especially in the Northeast, in order to support the construction of new industrial areas; (2) construction of new industrial bases in the North and South; and (3) the construction of a new industrial base in the Southwest.

The data on the gross value of industrial output by geopgraphic region and province shown in Table 10 indicate a considerable change over the last 30 years. To make the shares of output comparable and the output indexes measure real growth, the data for 1983 are converted from 1980 prices to 1952 prices by deflating the output of industrial branches of industry within each province by the national price indexes for the respective branches.[20]

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[20] The data are given in State Statistical Bureau, *Statistical Yearbook of China, 1984*, Beijing, 1984, pp. 205–212 and the price indexes are from Table 2. The actual price indexes undoubtedly vary from province to province, but the data necessary to make the calculations are not available. Neither are the data necessary to calculate output for 1952 or 1957 in 1980 prices.

TABLE 10.—CHINA: GROSS VALUE OF INDUSTRIAL OUTPUT, BY PROVINCE, 1952, 1957, and 1983

	1952		1957		1983				Index (1952=100)		
	Million 1952 yuan	Shares (percent)	Million 1952 yuan	Shares (percent)	Million 1952 yuan	Shares (percent)	Million 1980 yuan	Shares (percent)	1952	1957	1983
Total	34,326	100.0	78,386	100.0	857,815	100.0	616,441	100.0	100.0	228.4	2,499.0
North	4,838	14.1	11,994	15.3	136,694	15.9	95,970	15.6	100.0	247.9	2,825.4
Beijing	825	2.4	2,300	2.9	39,954	4.7	25,060	4.1	100.0	278.8	4,842.9
Tianjin	1,836	5.3	4,300	5.5	34,830	4.1	22,920	3.7	100.0	234.2	1,897.1
Hebei	1,342	3.9	2,805	3.6	33,660	3.9	25,269	4.1	100.0	209.0	2,508.2
Shanxi	643	1.9	1,832	2.3	19,055	2.2	15,187	2.5	100.0	284.9	2,963.4
Neimenggu	192	.6	757	1.0	9,195	1.1	7,534	1.2	100.0	394.3	4,789.1
Northeast	7,514	21.9	18,018	23.0	130,660	15.2	97,021	15.7	100.0	239.8	1,738.9
Liaoning	4,523	13.2	11,710	14.9	71,549	8.3	51,664	8.4	100.0	258.9	1,581.9
Jilin	1,102	3.2	2,378	3.0	24,704	2.9	16,507	2.7	100.0	215.8	2,241.8
Heilongjiang	1,189	5.5	3,930	5.0	34,406	4.0	28,850	4.7	100.0	208.0	1,821.4
East	13,901	40.5	27,862	35.5	323,577	37.7	228,442	37.1	100.0	200.4	2,237.7
Shanghai	6,510	19.0	12,969	16.5	102,629	12.0	67,858	11.0	100.0	199.2	1,576.5
Jiangsu	2,584	7.5	4,553	5.8	81,970	9.6	56,945	9.2	100.0	176.2	3,172.2
Zhejiang	1,099	3.2	2,374	3.0	37,783	4.4	26,811	4.3	100.0	216.0	3,437.9
Anhui	628	1.8	1,501	1.9	20,348	2.4	16,069	2.6	100.0	239.0	3,240.2
Fujian	414	1.2	1,224	1.6	13,276	1.5	9,581	1.6	100.0	295.7	3,206.8
Jiangxi	575	1.7	1,173	1.5	13,945	1.6	10,620	1.7	100.0	204.0	2,425.2
Shandong	2,091	6.1	4,068	5.2	53,625	6.3	40,558	6.6	100.0	194.5	2,564.6
South	4,694	13.7	10,933	13.9	159,477	18.6	115,598	18.8	100.0	232.9	3,397.5
Henan	881	2.6	1,705	2.2	31,033	3.6	23,664	3.8	100.0	193.5	3,522.5
Hubei	955	2.8	2,799	3.6	43,268	5.0	31,266	5.1	100.0	293.1	4,530.7
Hunan	770	2.2	1,819	2.3	28,574	3.3	20,586	3.3	100.0	236.2	3,710.9
Guangdong	1,745	5.1	3,812	4.9	44,016	5.1	30,594	5.0	100.0	218.5	2,522.4
Guangxi	343	1.0	798	1.0	12,585	1.5	9,488	1.5	100.0	232.7	3,669.2
Southwest	2,251	6.6	6,589	8.4	66,699	7.8	49,266	8.0	100.0	292.7	2,963.1
Sichuan	1,649	4.8	4,873	6.2	46,706	5.4	33,997	5.5	100.0	295.5	2,832.4
Guizhou	269	.8	605	.8	8,569	1.0	6,223	1.0	100.0	224.9	3,185.6
Yunnan	333	1.0	1,101	1.4	11,270	1.3	8,916	1.4	100.0	330.6	3,384.3
Xizang	ngl	ngl	10	ngl	154	ngl	130	ngl			

Northwest	833	2.4	2,395	3.1	40,690	4.7	30,144	4.9	100.0	287.5	4,884.8
Shaanxi	381	1.1	1,263	1.6	18,538	2.2	12,945	2.1	100.0	331.5	4,865.6
Gansu	230	7	560	.7	12,132	1.4	8,811	1.4	100.0	243.5	5,274.7
Qinghai	837	.1	101	.1	1,928	.2	1,427	.2	100.0	273.0	5,209.9
Ningxia	10	ng!	25	ngl	2,145	.3	1,612	.3	100.0	250.0	21,453.2
Xinjiang	175	.5	446	.6	5,947	.7	5.349	.9	100.0	245.9	3,398.4

Sources

1952 and 1957 Robert Michael Field, Nicholas R. Lardy, and John Philip Emerson, Provincial Industrial Output in the People's Republic of China: 1949-1975, U.S. Department of Commerce, Bureau of Economic Analysis, Foreign Economic Report No. 12, Washington, D.C., 1976, p. 20.

1982

Million 1952 yuan. See the text.

Million 1980 yuan. State Statistical Bureau, Statistical Yearbook of China, 1984. Beijing, 1984, pp. 205-212

The three regions with the largest shares of output in 1952—the East, Northeast, and North—have shown the lowest growth and the three regions with the smallest shares—the South, Southwest, and Northwest—have shown the highest. The East still dominates industry, producing more than one-third of total output, but its growth has been low and its share of output has declined. The Northeast has also declined in importance, dropping from the second largest region to fourth place and showing the lowest rate of growth.

The most dramatic change has been in the South, which rose from 13.7 percent of total output in 1952 to 18.5 percent in 1983 and now ranks as the second largest region.

These trends, which are the result of the policy pursued since the 1950s, will probably change in the next few years. Emphasis has shifted from the development of the interior—where investment costs are relatively high—to development of areas in which the infrastructure is more fully developed. The South will continue to grow rapidly, but this new emphasis should give a boost production in the East and Northeast and raise their rates of growth in relation to those of the rest of the country.

IV. CURRENT REFORMS [21]

The decision of the 3rd Plenum of the 11th Party Central Committee in December 1978 marked a turning-point in the economic development of China.[22] The high but erratic rate of growth in Chinese industry since 1949 had been achieved by using ever increasing amounts of labor and capital. Not only was the economy operating inefficiently, but also the industrial output mix was inappropriate and inventories accumulated to very high levels. For example, the inventory of rolled steel at yearend 1976 was 12 million tons compared with an annual production of 14.7 million tons.[23] This in turn caused working capital (most of which was provided through budget grants) to grow nearly twice as fast as output. However, the true state of affairs was obscured by the political turmoil and the virtual disbanding of the State Statistical Bureau during the previous decade.

As the statistical system was restored, it began to produce data on employment, capital stock, the use of fuels and raw materials, and so forth that made the deficiencies in industry increasingly clear. Planners and economists, now more conscious of the deficiencies, began to advocate sweeping reforms. By December 1978 the Party leadership understood the economic problems well enough to endorse a strategic shift in economic policy. The Chinese subsequently have undertaken a bewildering variety of experiments and reforms in industrial enterprises, beginning on an extremely small scale—primarily in Sichuan—and then spreading rapidly throughout the country. These reforms gave an increasing number of managers more authority to plan and market their output, the right to retain a larger share of their profits, and the freedom to make some decisions on investment in new capacity.

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[21] This section summarizes and brings up to date the analysis in Robert Michael Field, "Changes in Chinese Industry Since 1978", *The China Quarterly*, No. 100, 1984, pp. 742-761.

[22] "Communique of the Third Plenum of the 11th Central Committee of the Communist Party of China", adopted 22 December 1978. *Foreign Broadcast Information Service Daily Report—China (FBIS)*, 26 December 1978, pp. E4-E13.

[23] William Byrd, *China's Financial System*, Boulder, Colorado, Westview Press, 1983, p. 46.

These reforms have led to a remarkable change in the composition of output in 1979-1983, as shown by the data in Table 2 and the rates of growth in Table 11. For each branch classified primarily as heavy industry (except timber), the rate of growth in 1979-1983 was lower than the rate in 1958-1978, whereas for each branch classified primarily as light industry (except other), the rate was higher. Or looked at in another way, from 1958 to 1978, every branch of heavy industry (except coal and timber) grew faster than the fastest growing branch of light industry, whereas from 1979 to 1983, only chemicals, machinery, and building materials grew faster than the slowest growing branch of light industry. And a rough division of the output of those branches that produce both light and heavy industrial commodities shows that in light industry only paper failed to grow faster than every component of heavy industry in these latter years.

The Chinese have changed the structure of industrial output since 1978, but were unable to raise the productivity of labor significantly until 1983. The productivity of capital has continued to decline. The data on the performance of state-operated industrial enterprises in Table 12 do not show the sharp contrast between the years before and after 1978 that was shown by the data on growth of output by branch of industry in Table 11. During the period 1958-1978, fixed assets and working capital both grew faster than output, so that the GVIO per 100 yuan of fixed assets declined 0.2 percent annually and GVIO per 100 yuan of working capital declined 2.9 percent annually. The gross value per worker and employee increased at 2.1 percent annually.

TABLE 11.—CHINA: AVERAGE ANNUAL RATES OF GROWTH OF THE GROSS VALUE OF INDUSTRIAL OUTPUT, BY BRANCH OF INDUSTRY, 1953-1983

	1953-57	1958-78	1979-83		
			Total	Light	Heavy
Total	16.1	8.8	9.7		
Metallurgy (heavy)	29.0	9.2	5.2		5.2
Electric power (heavy)	20.4	13.3	6.3		6.3
Coal (heavy)	17.1	7.4	1.9		1.9
Petroleum (heavy)	32.7	18.8	2.9		2.9
Chemicals	31.2	15.0	9.2		
of which:					
Light				13.2	
Heavy					7.3
Machinery	29.7	13.1	7.2		
of which:					
Light				14.2	
Heavy					5.2
Building materials (heavy)	20.0	9.9	8.1		8.1
Timber	13.7	2.3	4.3		
of which:					
Light				14.4	
Heavy					-.3
Food processing (light)	13.2	4.7	9.3	9.3	
Textiles (light)	8.6	6.4	12.9	12.9	

TABLE 11.—CHINA: AVERAGE ANNUAL RATES OF GROWTH OF THE GROSS VALUE OF INDUSTRIAL OUTPUT, BY BRANCH OF INDUSTRY, 1953–1983—Continued

	1953-57	1958-78	1979-83		
			Total	Light	Heavy
Paper (light)	19.1	5.9	6.9	6.9	
Other	18.8	8.5	8.3		
of which:					
Light				8.6	
Heavy					5.8

Sources:

Light and Heavy: Derived from rough estimates of the value of light and heavy industry for 1978 (see Robert Michael Field, "Changes in Chinese Industry Since 1978," The China Quarterly, No. 100, 1984, pp. 752-753) and reported data for 1983 (see State Statistical Bureau, Statistical Yearbook of China, 1984, Beijing, 1984, pp. 203-204.

All other data: Derived from the data in table 2.

TABLE 12.—CHINA: PERFORMANCE OF STATE-OPERATED INDEPENDENT-ACCOUNTING INDUSTRIAL ENTERPRISES, 1952, 1957, 1978, AND 1983

	1952	1957	1978	1983	Average annual rate of growth		
					1953-57	1958-78	1979-83
Estimated gross value of industrial output (million 1970 yuan)	24,451	53,075	327,559	454,297	16.8	9.1	6.8
Fixed assets at original purchase price (million yuan)	14,920	33,660	319,340	476,780	17.7	11.3	8.3
Working capital (million current yuan)	4,600	9,050	104,730	129,149	14.5	12.4	4.3
Average annual number of workers and employees (thousands persons)	4,789	7,346	29,550	34,758	8.9	6.9	3.3
Gross value per 100 yuan of fixed assets (yuan)	164	158	103	95	−0.7	−0.2	−1.6
Gross value per 100 yuan of working capital (yuan)	532	586	313	352	2.0	-2.9	2.4
Gross value per worker and employee (yuan)	5,106	7,225	11,085	13,070	7.2	2.1	3.3

Source:

1952, 1957, and 1978: Robert Michael Field, "Slow Growth of Labor Productivity in Chinese Industry: 1952-1981", The China Quarterly, No. 96, pp. 648 and 659-660.

1983:

Gross value: Derived by deflating the data on the gross value of output from Table D2. The price indexes are derived in Table D1, except for paper and other. These latter indexes are derived from the output data for industry as a whole in Table A1.

Fixed assets and working capital: State Statistical Bureau, Statistical Yearbook of China, 1984, Beijing, 1984, p. 264.

Workers and employees: Derived from data on the gross value of industrial output and productivity in State Statistical Bureau, op. cit., pp. 264 and 270.

During the period 1979–1983, the rate of growth of output and inputs all slowed, with fixed assets continuing to grow faster than output. The GVIO per 100 yuan of working capital began to increase, rising 2.4 percent annually, and the growth of GVIO per worker and employee rose 2.2 percent annually through 1982 and then grew 7.5 percent in 1983 and 8.5 percent in the first 11 months of 1984.

One result of the reforms in industry since 1978 has been to place increasing amounts of money in the hands of enterprise managers, as shown by the data in Table 13. In the five years between 1978 and 1983, retained profit increased 2½ times, rising from 8.6 percent of profit and taxes to 23.5 percent, while profit remitted and taxes rose a scant 9 percent. In other words, the government's share of the taxes paid and profit earned by state-operated enterprises declined from 61.0 percent to 50.4 percent, which is particularly important for the state as the revenue generated in these enterprises is about three-quarters of the total.

Despite elaborate rules restricting what enterprise managers are allowed to do with these retained profits many have invested heavily in new plant and equipment. Data on investment in state-operated *industrial* enterprises by source of funds are not available, but total investment in fixed assets outside the state budget (shown in Table 14) is strongly correlated with profits retained by the enterprises (shown in Table 13).

TABLE 13.—CHINA: PROFIT AND TAXES OF STATE-OPERATED INDEPENDENT-ACCOUNTING INDUSTRIAL ENTERPRISES, 1978–1983

	Million current yuan		1983 index (1978 = 100)
	1978	1983	
Profit and taxes	79,070	103,281	130.6
Profit	50,880	64,094	126.0
Remitted	44,042	39,860	90.5
Retained	6,838	24,234	354.4
Taxes	28,190	39,187	109.4
Total revenue from state-operated enterprises	72,232	79,047	
Retained profit:			
As a share of total profit (percent)	13.4	37.8	
As a share of profit and taxes (percent)	8.6	23.5	
Remitted profit as a share of total revenue (percent)	61.0	50.4	

Sources:
Remitted profit:
1978: State Statistical Bureau, *Zhongguo tongji zhaiyao, 1983*, Beijing, 1983, p. 65
1983: State Statistical Bureau, *Zhongguo tongji zhaiyao, 1983*, Beijing, 1984, p. 73
All other data:
1978: Xue Muqiao, et al., eds., *Zhongguo jingji nianjian 1982* (Almanac of China's Economy, 1982), Hong Kong, 1982, p. VIII–21
1982: State Statistical Bureau, *Statistical Yearbook of China, 1984*, Beijing, 1984, p. 264

TABLE 14. CHINA: STATE-SECTOR INVESTMENT IN FIXED ASSETS, 1978–1983

	Million current yuan		1983 index (1978 = 100)
	1978	1983	
Total	66,872	95,196	142.4
State budget	44,385	38,659	87.1
Other	22,487	56,537	251.4
Capital Construction	50,099	59,413	118.6
State budget	41,737	34,576	82.8
Other	8,362	24,837	297.0
Technical innovation and transformation	16,773	35,783	213.3
State budget	2,648	4,083	154.2
Other	14,125	31,700	224.4

Source: State Statistical Bureau, *Statistical Yearbook of China, 1984*, Beijing, 1984, pp. 301 and 333

The Government, as well as most Chinese economists, has felt that over the years investment has risen at the expense of consumption. Thus it sought to reduce investment as a share of national income and to change its composition in favor of light industry, urban housing and other critical sectors. Investment under the state budget has been cut back, but investment outside the budget has tripled, growing rapidly in every year except 1981, when the central government made an extraordinary effort to slash investment. The behavior of enterprise managers has been precisely what the economic reforms were designed to promote. With control over resources (though the retention of a greatly increased share of profit), managers sought to invest in capacity that would yield a high profit. The aggregate effect of their individual decisions has been to keep investment in capital construction at a higher level than the government wanted. This is mainly due to the fact that prices were essentially fixed and most supply and marketing was still done through state channels. The stimulation of excessive investment demand has been the most serious side effect of this major decentralization of economic power.

One recent development of some importance is the drive to eliminate substantial financial losses in state-operated enterprises. One enterprise in four was losing money between 1978 and 1982, and their losses exceeded 4 billion yuan annually [24]—which was equivalent to 6 to 8 percent of the total profit earned. The drive has included public criticism in the press, the closing or reorganizing of some enterprises, and the unprecedented step of firing a few enterprise managers. In Liaoning, for example, 148 factory leaders in 80 enterprises had been fired by the end of August 1983.[25] The dismissal of these managers, "sent a chill" through the system. Nationally, by the end of 1983, the number of enterprises operating in the red had been cut by 4,229—that is from 26.1 percent of all enterprises under the state budget in 1982 to 15.8 percent—and total losses were down from 4.27 billion yuan to 2.79 billion yuan, a reduction of 34.6 percent. And in the first nine months of 1984, losses were 20.5 percent below those in the corresponding period of 1983.[26]

Pressure is still mounting: Beijing has threatened that no bonuses or pay raises will be allowed at enterprises with long-standing losses and that no subsidies will be paid. To the extent that poor management is the cause of the losses, pressure on managers makes sense, but the increased pressure may well cause enterprises to lower quality, to increase production of commodities that will yield a profit irrespective of demand, or to take other socially undersirable steps.

A second major development has been the substitution of an income tax for the remission of profit by state-operated enterprises. Billed by Minister of Finance Wang Bingqian as a "major step to restructure China's economic system", the tax requires enterprises to pay 55 percent of their net income to the state.[27] Because of the current irrational price structure, the tax was to be implemented in two phases, with Phase II to be delayed until after price reform. In the first phase, which went into effect on January 1, 1983, enterprises also had to pay an "adjustment" tax, that is, a share of the after-tax profit—determined on an enterprise-by-enterprise basis—to replace the profit formerly remitted to the state. Otherwise, many enterprises would have had windfall gains in retained profits, and state revenue would have fallen sharply. By the end of July, 98 percent of all profit-making state-owned enterprises were reported as already in the system. They had paid 9.7 billion income taxes,[28] which is equivalent to a quarter of the total profit remitted during all of 1982. For 1983 as a whole, profit remitted increased by 2.0 percent and taxes paid by 4.6 percent. Unfortunately, these figures cannot be interpreted properly because data on revenue from state-operated industrial enterprises by type of tax are not available.

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[24] Communique of the State Statistical Bureau of the People's Republic of China on Fullfilment of China's National Economic Plan, 1978, 1979, 1980, 1981, and 1982.

[25] FBIS, 19 October 1983, p. K20.

[26] BBC, Summary of World Broadcasts, FE/W1316/A1, December 5, 1984.

[27] FBIS, 30 March 1983, p. K10. Smaller enterprises pay according to an eight-level, progressive scale.

A disadvantage of the arrangement under Phase I was that the adjustment tax had to be negotiated between the enterprises and the various ministries and industrial bureaus, which means the enterprises still had a bureaucratic relationship with the state that enabled some of them to extract special advantages and allowed the state to interfere in the management of others. For this reason, the State Council started a gradual shift to Phase II in the fourth quarter of 1984, even though prices were still irrational. Under Phase II, enterprises continue to pay the 55-percent income tax and also a product tax that is the same nationally for each commodity. As product taxes replace the individually negotiated adjustment tax, enterprises will be allowed to retain their entire after-tax profit.

Because enteprises within an industry face the same supply and demand conditions, the state hopes the product tax will eliminate windfall gains, reward efficient enterprises, and put pressure on inefficient enterprises. It also views the product tax as a way to free enterprises from undue administrative control, to force enterprises in different industries to compete under roughly equal conditions and to give the state economic leverage despite the irrational structure of prices. The product tax, however, is not a substitute for a rational price structure. The elimination of windfall gains and responsibility for profit and loss together to give a powerful incentive to operate efficiently, but with an irrational price structure, the incentive is to economize on the commodities that are the most expensive, and not necessarily on those that are in short supply.

Perhaps the most important event to date is the decision made by the 3rd Plenum of the 12th Party Central Committee on October 20, 1984.[29] The Plenum reviewed both the positive and negative aspects of the current economic and political situation and reflected a leadership consensus that China must further invigorate an urban economy which has been stifled by a rigid economic system. The decision characterized the major defects of the system as: (a) the lack of a clear distinction between the functions of governmental institutions and those of the enterprise; (b) the existence of administrative barriers that separate the various ministries and geographic regions; (c) the overly tight control of enterprises by the state; (d) the little use of the market; and (e) an overemphasis on an egalitarian distribution of income.

The major thrust of the reform—which is to ensure social stability, to raise output, to improve standards of living and to increase state revenue—is to make enterprises relatively independent economic entities that are responsible for their own profit and loss and to link incomes with job performance. This involves a whole range of specific reforms—including the reform of planning, commodity pricing, economic management by state institutions, and the labor and wage system—each of which is a complex task. The proposed reforms in each of these areas are summarized below.

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[28] FBIS, 10 August 1983, K4.

[29] See *FBIS*, October 22, 1984, pp. K1-K19.

The Plenum felt on the one hand that the current system of mandatory planning cannot cope adequately with the growing complexity of the economy and on the other that too extensive a use of markets would lead to disorder. The solution they propose is to reduce the scope of mandatory planning gradually until it applies only to a small number of commodities that are viewed as essential or that are basic items of consumption. In 1985, for example, the number of commodities covered by mandatory plans will be reduced from 120 to 60.[30] Other commodities are to be covered by guidance planning. However, guidance planning will require the development of a system to forecast the demand for output and the availability of raw materials, and also the development of economic levers to ensure that the plans are fulfilled.

The Plenum declared that prices currently do not reflect the law of value or the relation between supply and demand. At present, prices are irrational in the following ways: price differentials do not reflect differences in quality; prices of some minerals and raw materials are low in relation to the prices of finished goods; and the retail prices of many agricultural commodities are below their state purchase price. Because pricing is an effective way to regulate the economy and because carrying out other reforms—such as in planning and in wages—depends on having a rational price structure, price reform is called the key to the reform of the entire economy. Prices are to be reformed gradually by reducing the number of uniform prices set by the state and increasing the number of floating and free prices. Free prices, however, are to be limited mainly to farm and sideline products, small articles for daily use and consumer services and repair. At the same time, the tax system and the financial and banking systems should be reformed so that economic levers such as prices, taxes, and credit can be used to regulate the economy.

The Plenum recognized a pressing need to separate the functions of governmental institutions and enterprises. One of the main reasons the state has exercised rigid control over enterprises is that ownership by the state has been equated with direct operation by the state. Now operation is to be separated from ownership. Enterprises are to be responsible for their profit and loss, and managers given the authority to:

plan their own production, supply and marketing,
set prices of their products (usually within limits determined by the state),
recruit, hire and fire,
use their workforce, and

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[30] The State Planning Commission will issue mandatory targets for rolled steel, nonferrous metals, coal, electric power, crude oil, basic chemical raw materials, chemical fertilizers, important types of machinery and power equipment, cement, lumber, chemical fibers, cigarettes, newsprint, and military and other important products. See *Ta kung pao*, December 13, 1984.

decide on wages and rewards

The Plenum also recognized government institutions need to be streamlined and decentralized at the same time as enterprises are given greater authority. These institutions are no longer to manage or operate enterprises directly, but are to formulate polices and work out plans to:

exploit natural resources, modernize technology, and develop intellectual resources,

co-ordinate the development plans of localities and ministries,

arrange for construction projects, especially in energy, transport, and raw and semi-finished materials industries, and

collect and disseminate economic information.

Government institutions are also to guide the activities of the enterprises through state economic planning, by administrative and legal means, and increasingly, by the use of prices, taxes, credit, and other economic levers. When necessary, they are to:

establish, merge, or close enterprises,

appoint and remove managers,

change lines of production, and

move enterprises to other locations.

The Plenum declared that the egalitarian distribution of consumer goods had dampened the initiative and creativeness of workers and that the income should be linked to job performance. An important step that has already been taken is to allow enterprises to decide on the size of bonuses for workers (and for the state to collect only an appropriate tax on above-norm bonuses). The spread in wages between various jobs should be widened so as to give more pay for more work and to reflect the differences between mental and manual, complex and simple, skilled and unskilled, and heavy and light work. The decision admits that this policy will allow some workers to achieve higher incomes before others but declares that it is necessary to stimulate production and is the only road to prosperity for society as a whole.

Several points should be made about the decision of the 3rd Plenum. First, it is a unique document in the history of economic reform: Nothing similar has appeared in the Soviet Union or Eastern Europe. Second, it is a statement of intent rather than a new call for reform. In fact, it is a comprehensive summary of reforms that have been planned, debated, and in some cases, undertaken in the last six years. Third, it does not advocate a free market system. It reserves for the government a strong role in planning and guiding the economy and in setting prices or price ranges.

The decision is important because it is a strong, high-level political endorsement of the reforms undertaken since the 3rd Plenum of the 11th Party Central Committee in 1978. The endorsement makes it much more likely that the reforms will result in the far-ranging changes necessary to modernize industry and the economy as a whole. Nevertheless, their ultimate success will depend on the willingness of the party and the government to accept voluntarily some limit on their political power. But how far will the Party and state bureaucracies be willing to let the market go? Will they accept unplanned changes in output, fluctation in prices, or the establishment of markets for labor and capital? If not, China will not be able to make a transition to some form of market socialism but will most likely remain a centrally planned, administratively controlled, and relatively inefficient economy.

APPENDIX A

OFFICIAL DATA AVAILABLE ON THE GROSS VALUE OF INDUSTRIAL OUTPUT

Published data and indexes for the gross value of industrial output (GVIO) are presented in Tables A1 and A2, respectively, and the average annual rates of growth for 1957–1962, 1962–1965, 1965–1970, and 1970–1975 are presented in Table A3. Five points should be made about the data. First, data for some branches of industries are not available. Second, the value of output at certain enterprises was transferred from the petroleum to the chemical industry in 1977 because the bulk of their output had changed to petrochemical products. Third, two sets of index numbers are available for the petroleum and chemical industries. Fourth, two sets of index numbers are available for all branches of industry and a third index number for the total in 1981. And fifth, the State Statistical Bureau has just published a set of index numbers different from those in Table A2, which revises the figures for almost all years since 1949 even though the GVIO data from which they are calculated appear to be unchanged.[31] These points are all discussed below.

The GVIO data in Table A1 are valued in the constant prices used during the periods 1949–1957, 1957–1971, 1971–1981, and 1981 to date, respectively, and the indexes in Table A2 are calculated by the official "comparable price" methodology. For example, the index for 1983 (with 1952-100) is:

$$\left(\frac{X_{a,57}}{X_{a,52}}\right)\left(\frac{X_{b,71}}{X_{b,57}}\right)\left(\frac{X_{c,81}}{X_{c,71}}\right)\left(\frac{X_{d,83}}{X_{d,80}}\right)(100)$$

where X stands for GVIO, the first subscript for the price basis of the data (a=1952; b=1957; c=1970; and d=1980), and the second subscript for the year to which the data applies.[32] Thus $X_{d,82}$ is the GVIO for 1982 in 1980 constant prices and $X_{a,52}$ is the GVIO for 1952 in 1952 constant prices. Note that the first term is in 1952 constant prices, the second in 1957 constant prices, the third in 1970 constant prices, and the fourth in 1980 constant prices. The index number for 1983 is:

$$\left(\frac{78,386}{34,326}\right)\left(\frac{278,220}{70,400}\right)\left(\frac{519,880}{238,940}\right)\left(\frac{616,441}{517,767}\right)(100) = 2,337.8$$

which agrees almost exactly with the published index of 2,340.1 for 1983.

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[31] See State Statistical Bureau, *Guanghui de 35-nian (Thirty-Five Glorious Years)*, Beijing, 1984, pp. 10 and 68. The data are reproduced in Table C2.

[32] The notation used here is not the same as that used in Section II, but the calculations are identical. For example, the $X_{a,52}$ used here is the same as the $\Sigma P_{52}Q_{52}$ use in Section II.

TABLE A1.—CHINA: REPORTED GROSS VALUE OF INDUSTRIAL OUTPUT, BY BRANCH OF INDUSTRY, SELECTED YEARS, 1952–1983

[In millions of yuan]

	1952 Prices		1957 prices					1970 prices							1980 prices		
	1952	1957	1957	1962	1965	1970	1971	1971	1975	1977	1978	1979	1980	1981	1981	1982	1983
Total	34,326	78,386	70,400	85,020	139,390	242,080	278,220	238,940	321,880	372,828	423,075	459,070	499,243	519,883	517,767	557,745	616,441
Metallurgy	2,020		6,000		14,950				28,830	29,052	36,891	41,027	43,027	41,540	45,669	48,523	52,368
of which:																	
Ferrous metals	1,390		4,180		10,670				19,380		25,617	28,702	29,889	28,086	31,378	33,728	36,478
Nonferrous metals	630		1,820		4,280				9,450		11,274	12,325	13,138	13,454	14,291	14,795	15,890
Electric power	430		1,170		4,310				12,470	14,135	16,142	17,672	18,839	19,409	19,486	20,707	22,023
Coal	830		2,060		3,600				9,000	10,312	11,685	11,808	11,397	11,276	14,626	15,514	16,664
Petroleum:																	
A	180		800		4,510				17,980	22,680							
B											23,329	24,957	25,231	24,537	28,213	28,798	31,009
Chemicals:																	
A	1,660		4,820		17,940				36,450	42,366							
B											52,498	56,184	62,230	65,128	59,143	65,901	74,114
Machinery	3,900		11,900		31,020				89,050	103,710	115,546	124,484	127,362	122,617	107,995	122,506	144,048
Building materials	1,030		2,270		3,960				9,990	13,334	15,391	16,732	18,153	18,086	19,507	22,258	24,544
Timber	2,230		4,060		3,990				6,110	7,000	7,741	8,475	8,665	8,616	10,490	11,225	11,606
Food	8,280		13,840		17,550				38,610	43,574	47,171	51,872	56,796	64,023	69,012	75,552	79,425
Textiles	9,430		14,360		22,070				39,610	46,065	52,909	59,306	73,540	86,825	85,602	86,685	95,604
Paper	760		1,540		2,450				4,140	4,754	5,384	6,030	6,414	6,402	6,940	7,396	8,141
Other																	

Note—Textiles exclude clothing

Sources

Total

1952 prices: Zhonghua jenmin gonghoguo shinian caieng ti weida chengjiu (Great achievements in Public Finance in the People's Republic of China in the Last Decade), Beijing, 1959, p. 229.

1957 prices: State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1984, pp. 214–215.

1970 prices: 1971 and 1975: Ibid. 1977–1979: United Nations Statistical Office. 1980–1981: State Statistical Bureau, Statistical Yearbook of China, 1981, Hong Kong, 1983, p. 212.

1980 prices: 1981–1982: State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1983, p. 222. 1983: State Statistical Bureau, Guanghui de 35-nian (Thirty-Five Glorious Years), Beijing, 1984, p. 12.

Branches of Industry

1952 and 1957 prices: Xue Muqiao, et. al., Almanac of China's Economy, 1981, Hong Kong, 1982, p. 972.

1970 prices: 1975: Ibid. 1977: United Nations Statistical Office. 1978–1981: Xue Muqiao, et. al., Almanac of China's Economy, 1984, Beijing, 1984, pp. III-24 to III-25.

1980 prices: 1981–1982: Ibid. 1983: State Statistical Bureau, Zhongguo tongji zhaiyao, 1984 (Statistical Abstract of China, 1984), Beijing, 1984, p. 42.

Ferrous and Nonferrous Metals

1952 and 1957 prices: Ma Hong, Xiandai zhongguo jingji shidian (Economic Events of Modern China), Beijing, 1982, pp. 169–170.

1970 prices: 1975: Ibid. 1978–1981: Xue Muqiao, et. al., loc. cit. 1980 prices: Ibid.

TABLE A2.—CHINA: REPORTED INDEXES OF THE GROSS VALUE OF INDUSTRIAL OUTPUT, BY BRANCH OF INDUSTRY, SELECTED YEARS, 1952–1983

[1952 = 100]

	1952	1957	1965	1971	1975	1978	1979	1980	1981			1982	1983
									I	II	III		
Total	100.0	228.6	452.6	903.3	1,216.4	1,598.6	1,734.4	1,887.0	1,962.7	1,962.7	1,964.4	2,115.7	2,340.1
Metallurgy	100.0	359.4	895.6		1,768.5	2,262.9	2,516.9	2,639.6	2,548.3	2,547.8		2,705.8	2,925.0
of which:													
Ferrous metals	100.0	377.0	961.0		1,823.0	2,410.0	2,701.0	2,810.0	2,641.0				
Nonferrous metals	100.0	321.0	754.0		1,648.0	1,962.0	2,146.0	2,287.0	2,341.0				
Electric power	100.0	253.5	934.0		2,699.1	3,493.4	3,824.6	4,077.8	4,201.4	4,199.3		4,463.9	4,751.6
Coal	100.0	250.5	385.2		762.5	990.4	1,000.6	965.9	955.7	955.0		1,013.3	1,088.4
Petroleum:													
1	100.0	411.1	2,317.8		10,703.1	15,275.3	16,342.5	16,519.3	16,065.0				
2	100.0	411.1	2,317.8		10,703.1	13,892.4		15,036.2		14,622.6		14,914.4	16,048.1
Chemicals:													
1	100.0	389.2	1,449.0		5,294.8	7,272.6	7,782.4	8,619.8	9,022.2				
2	100.0	389.2	1,449.0		5,294.8	7,272.6		7,625.7		9,465.7		10,544.7	11,849.5
Machinery	100.0	366.7	955.9		3,783.0	4,908.8	5,288.2	5,410.5	5,209.2	5,209.6		5,907.7	6,936.5
Building materials	100.0	248.5	433.3		1,170.4	1,802.1	1,959.0	2,125.3	2,117.6	2,119.1		2,415.5	2,667.1
Timber	100.0	190.1	186.9		243.5	308.4	337.9	345.1	343.1	343.2		367.2	379.6
Food	100.0	185.5	235.4		397.3	485.4	533.8	584.5	658.8	658.7		721.3	758.5
Textiles	100.0	151.1	232.2		419.3	560.1	627.8	778.5	919.1	919.4		931.2	1,027.4
Paper	100.0	239.5	381.0		611.7	795.0	891.1	947.3	945.5	946.2		1,008.6	1,111.1

Sources:
Ferrous metals, nonferrous metals, petroleum (1), and chemicals (a): Ma Hong, *Xiandai zhongguo jingji shidian* (Economic Events of Modern china), Beijing, 1982, pp. 154 and 169–170.
Total and other branches:
1957–1975 and 1979: Xue Muqiao, et. al., Almanac of China's Economy, 1981, Hong Kong, 1982, p. 972.
1978, 1980 and 1981 II: Xue Muqiao, et. al., *Zhongguo jingji nianjian, 1982* (Almanac of China's Economy, 1982), Hong Kong, 1982, p. VIII-16.
1981 I: Ma Hong, op. cit., p. 154.
1981 III and 1982: State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1983, pp. 17 and 218.
1983: State Statistical Bureau, Guanghui de 35-nian (Thirty-Five Glorious Years), Beijing, 1984, p. 69.

TABLE A3.—CHINA: REPORTED AVERAGE ANNUAL RATES OF GROWTH, BY BRANCH OF INDUSTRY, SELECTED PERIODS, 1957–1975

[In percent]

	1957-62	1962-65	1965-70	1970-75
Metallurgy	7.4	20.4	8.8	5.3
Electric Power	20.7	12.8	11.5	10.9
Coal	11.8	0.1	8.8	5.4
Petroleum	22.2	27.4	18.5	14.6
Chemicals	14.4	23.9	17.3	10.4
Machincry	7.6	21.8	15.8	13.6
Building materials	−4.5	30.1	9.4	11.5
Timber	−4.9	8.1	−1.8	7.5
Food	−1.7	11.4	2.4	8.4
Textiles	−3.3	21.8	8.0	4.2
Paper	2.5	12.1	3.3	6.5

Source: State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1983, p. 219.

APPENDIX B

ESTIMATION OF MISSING GROSS VALUE OF INDUSTRIAL OUTPUT DATA AND PRICE INDEXES BY BRANCH OF INDUSTRY

Because of the missing GVIO data and the methodological deficiency of the official output indexes, both the missing data and price indexes for each branch of industry need to be estimated in order to caluclate a reasonable approximation of the gross value of output in true constant prices.[33]

The three price indexes to be estimated are:

$$P_{57} = \left(\frac{X_{b,57}}{X_{a,57}}\right)(100)$$

$$P_{70} = \left(\frac{X_{c,71}}{X_{b,71}}\right)(100)$$

and

$$P_{80} = \left(\frac{X_{d,81}}{X_{c,81}}\right)(100)$$

Where X stands for GVIO, the first subscript for the price basis of the data (a = 1952; b = 1957; c = 1970; and d = 1980), and the second subscript for the year to which the data applies. However, GVIO by branch of industry for 1957 in 1952 prices ($X_{a,57}$), for 1971 in 1957 prices ($X_{b,71}$) and for 1971 in 1970 prices ($X_{c,71}$) have not been published. As a result, only the 1980 price index can be calculated directly from the data presented in Table Al.

The method used to estimate the other price indexes is based on solving a system of equations that approximates both the reported GVIO data and the reported output indexes as closely as possible by minimizing the sum of the errors squared. The first four equations—which are shown for the metallurgical industry in Table B1—are to ensure that the estimated values are as close as possible to the rounded official figures for the years through 1975, and the next seven to ensure that the indexes calculated from the estimated values are as close as possible to the official indexes. Even this method does not permit GVIO for 1971 in 1957 or in 1970 constant prices to be estimated separately, but their ratio (which is the official 1970 price index) can be estimated.

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[33] For a discussion of the defects of the "comparable price" methodolgy, see Section II.

The output values and indexes estimated by the simultaneous solution of the 12 equations in Table B1 are presented in Table B2 and compared with the reported data. The calculations for 1981 are based on index 1 in Table A2. A hypothesis about index 2 is discussed in Appendix C.

The price indexes for the petroleum and chemical industries are estimated in the same way as those for the other branches of industry. Because of the change in coverage in 1977, however, equations 9 through 12 require an extra term. The equation for the 1978 index number is as follows:

$$\left(\frac{X_{a,57}}{X_{a,52}}\right)\left(\frac{\frac{X_{c,77}}{P_c}}{X_{b,57}}\right)\left(\frac{Y_{c,78}}{Y_{c,77}}\right)(100)$$

where X stands for GVIO with coverage A and Y for GVIO with coverage B. Note in particular that the coverage of the third term is not the same as the coverage of the first two terms.[34]

The 1957 price index for other industry is derived from the residual for the year 1957 in 1952 and 1957 prices, and the 1980 price index from the residual for the year 1981 in 1970 and 1980 prices. As there are no branch of industry data available for 1971, the price index for other industry was assumed to be the same as that for light industry. Finally, the values for 1962 and 1970 are calculated from the reported average annual rates of growth presented in Table A3 and the estimated output values derived by the procedure described above.

The estimated values for the years 1952 through 1957 are presented in Table B3. These values are in the official constant prices used during three separate subperiods. For the estimated price indexes and an approximation the value of output for industry as a whole in true constant prices, see Section III.

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[34] For a discussion of the two indexes for the petroleum and chemical industries, see Appendix C.

Table B1

The Equations for the Metallurgical Industry

Equations to estimate output value:

1. For 1952: $x_{a,52} = 2.02 + \epsilon$
2. For 1957: $x_{b,57} = 6.0 + \epsilon$
3. For 1965: $x_{b,65} = 14.95 + \epsilon$
4. For 1979: $x_{c,75} = 28.83 + \epsilon$

Equations to estimate output indexes:

5. For 1957: $\left(\frac{x_{a,57}}{x_{a,52}}\right)(100) = 359.4 + \epsilon$
6. For 1965: $\left(\frac{x_{a,57}}{x_{a,52}}\right)\left(\frac{x_{b,65}}{x_{b,57}}\right)(100) = 895.6 + \epsilon$
7. For 1975: $\left(\frac{x_{a,57}}{x_{a,52}}\right) \left(\frac{\left(\frac{x_{c,75}}{P_{70}}\right)}{x_{b,57}}\right) (100) = 1{,}768.5 + \epsilon$
8. For 1975: $\left(\frac{x_{a,57}}{x_{a,52}}\right) \left(\frac{\left(\frac{36.891}{P_{70}}\right)}{x_{b,57}}\right) (100) = 2{,}262.9 + \epsilon$
9. For 1975: $\left(\frac{x_{a,57}}{x_{a,52}}\right) \left(\frac{\left(\frac{41.027}{P_{70}}\right)}{x_{b,57}}\right) (100) = 2{,}516.9 + \epsilon$
10. For 1975: $\left(\frac{x_{a,57}}{x_{a,52}}\right) \left(\frac{\left(\frac{43.027}{P_{70}}\right)}{x_{b,57}}\right) (100) = 2{,}639.6 + \epsilon$
11. For 1975: $\left(\frac{x_{a,57}}{x_{a,52}}\right) \left(\frac{\left(\frac{41.540}{P_{73}}\right)}{x_{b,57}}\right) (100) = 2{,}548.3 + \epsilon$

TABLE B2.—CHINA: THE METALLURGICAL INDUSTRY, SELECTED YEARS, 1952–1981

	Industrial output								
	1952	1957	1965	1970	1975	1978	1979	1980	1981
Gross value (billion yuan)									
1952 prices:									
Reported	2.02								
Calculated	2.021	7.263							
Error	.001								
1957 prices:									
Reported		6.00	14.95						
Calculated		5.999	14.950						
Error		−0.001	0.000						
1970 prices:									
Reported					28.83	36.891	41.027	43.027	41.540
Calculated					28.829				
Error					−.001				
Output index (1952 = 100)									
Reported	100.0	359.4	895.6		1,768.5	2,262.9	2,516.9	2,639.6	2,548.3
Calculated	100.00	359.39	895.60		1,768.50	2,263.10	2,516.82	2,639.51	2,548.29
Error	0.00	−0.01	0.00		0.00	0.20	−0.08	−0.09	−0.01

	Price indexes			
	1952	1957	1970	1980
1952 = 100	100.00	82.60		
1957 = 100		100.00	97.65	
1970 = 100			100.00	109.94

TABLE B3.—CHINA: ESTIMATED GROSS VALUE OF INDUSTRIAL OUTPUT, BY BRANCH OF INDUSTRY, SELECTED YEARS, 1952–1975

[In millions of yuans]

	1952 prices		1957 prices				1975 in 1970 prices
	1952	1957	1957	1962	1965	1970	
Total	34,326	78,386	70,400	85,020	139,390	242,080	321,880
Metallurgy	2,021	7,263	5,999	8,569	14,950	22,798	28,829
of which:							
Ferrous metals	1,396	5,258	4,182	5,586	10,675	15,292	19,375
Nonferrous metals	625	1,818	2,983	4,275	7,506	9,454	13,138
Electric power	430	1,090	1,170	3,001	4,310	7,426	12,470
Coal	830	1,830	2,061	3,593	3,600	5,483	8,997
Petroleum (A)	183	751	800	2,180	4,509	10,535	17,980
Chemicals (A)	1,670	6,500	4,817	9,433	17,935	39,895	36,448
Machinery	3,903	14,311	11,900	17,166	31,020	64,741	89,049
Building materials	1,032	2,563	2,271	1,800	3,960	6,206	9,996
Timber	2,230	4,239	4,059	3,159	3,991	3.633	6,112
Food	8,280	15,362	13,836	12,698	17,553	19,780	38,609
Textiles	9,430	14,248	14,361	12,187	22,070	32,435	39,610
Paper	760	1,820	1,540	1,740	2,540	2,876	4,141
Other	3,558	8,408	7,587	9,495	13,043	26,273	29,639

Note.—Data for years since 1975, which are given to the nearest million yuan in Table A1, are accepted as reported.

APPENDIX C

DISCUSSION OF CONFLICTING OFFICIAL OUTPUT INDEXES

The reasons for the differences between some of the multiple official output indexes are clear, but most of the differences cannot be explained on the basis of the data published to date. First, consider the two indexes for the petroleum and chemical industries. Because of the change in coverage in 1977, the index numbers for the year since 1977 should have an extra term. The equation for the 1978 index number is as follows:

$$\left(\frac{X_{a,57}}{X_{a,52}}\right)\left(\frac{\frac{X_{c,77}}{P_{70}}}{X_{b,57}}\right)\left(\frac{Y_{c,78}}{Y_{c,77}}\right)(100)$$

where X stands for GVIO with coverage A, Y for GVIO with coverage B, and P_{70} for the 1970 price index (with 1957=100). Note in particular that the coverage of the third term is not the same as the coverage of the first two terms.

In 1978, index 2 for the chemical industry is the same as index 1, while index 2 for the petroleum industry is different (despite the fact they were published in the same source). In 1980 and 1981, the indexes are different. The cause of the difference for the petroleum industry in 1978 appears to be that index 2 ignores the change in coverage in 1977. If the output values and price indexes estimated in Appendix B, are used, the calculation for index 1 in 1978 is as follows:

$$\left(\frac{751}{183}\right)\left(\frac{\frac{22{,}680}{0.8636}}{800}\right)\left(\frac{23{,}329}{20{,}620}\right)(100) = 15{,}274.95$$

which is virtually identical to 15,275.3, the reported value of index 1. Note again that the coverage of the first two terms is A, while the coverage of the third term is B. The index is linked in 1977 when the coverage changes.

The calculation for index 2 in 1978 is as follows:

$$\left(\frac{751}{183}\right)\left(\frac{\frac{23{,}329}{0.8636}}{800}\right)(100) = 13{,}857.34$$

which is very close to 13,894.2, the reported value of index 2. Note here that the coverage of the numerator in the second term (23,329) is not the same as that of the denominator (800). This index ignores the change in coverage and does not reflect the true growth of the industry.

Next, the two sets of index numbers from 1981 suggest that there may have been a fairly extensive reclassification of enterprises in 1981. Table C1 presents reported and calculated annual indexes for 1981 and 1982. The calculated annual indexes for 1981 show that the index I for 1981 is consistent with the reported index for 1980;

and the calculated annual indexes for 1982 show that index II for 1981 is consistent with the reported index for 1982. If enterprises were reclassified in 1981, then index I is consistent with the original coverage and index II with the revised coverage.

Finally, the data in Table C2 show that the index numbers for most years have been revised even though the GVIO data presented in the same source appear to be a rounded version of previously published figures and the gross values of light and heavy industry (which are not shown) are identical with those published previously. The reason for the discrepancy between the old and the new index numbers—which gets larger year by year—is not known.

TABLE C1.—CHINA: REPORTED AND CALCULATED ANNUAL INDEXES BY BRANCH OF INDUSTRY, 1981 AND 1982

	1980 index 1952 = 100	1981 index I 1952 = 100	1981 index 1980 = 100		1981 index II	1982 index 1952 = 100	1982 index 1981 = 100	
			Calculated	Reported			Calculated	Reported
Metallurgy	2,639.6	2,548.3	96.54	96.54	2,547.8	2,705.8	106.20	106.2
Electric power	4,077.8	4,201.4	103.03	103.03	4,199.3	4,463.9	106.30	106.3
Coal	965.9	955.7	98.94	98.94	955.0	1,013.3	106.10	106.1
Petroleum:								
1	16,519.3	16,065.0	97.25	97.25				
2					14,662.6	14,914.4	102.00	102.1
Chemicals:								
1	8,619.8	9,022.2	104.67	104.66				
2					9,465.6	10,544.7	111.40	111.4
Machinery	5,410.5	5,209.2	96.28	96.28	5,209.6	5,907.7	113.40	113.4
Building materials	2,125.3	2,117.6	99.64	99.64	2,119.1	2,415.5	113.99	114.1
Timber	345.1	343.1	99.42	99.43	343.2	367.2	106.99	107.0
Food	584.5	658.8	112.71	112.72	658.7	721.3	109.50	109.5
Textiles	778.5	919.1	118.06	118.06	919.4	931.4	101.31	101.3
Paper	947.3	945.5	99.81	99.81	932.0	1,008.6	108.22	106.6

Sources:
State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1983, p. 218.
State Statistical Bureau, Guanghui de 35-nian (Thirty-Five Glorious Years), Beijing, 1984, p. 60.
Table A2.

TABLE C2.—CHINA: ALTERNATIVE OFFICIAL DATA AND INDEXES FOR GROSS VALUE OF INDUSTRIAL OUTPUT, 1952–1983

	Gross value of industrial output (billion yuan)		Output index (1952 = 100)	
	A	B	A	B
1952 prices:				
1952	34.33	34.3	100.0	100.0
1953	44.70	44.7	130.3	130.3
1954	51.97	52.0	151.6	151.6
1955	54.87	54.9	160.0	160.0
1956	70.36	70.3	204.9	204.9
1957	78.39	78.4	228.6	228.6
1957 prices:				
1957	70.40	70.4		
1958	109.00	109.0	353.8	353.9
1959	148.40	148.4	481.8	481.7
1960	165.00	165.0	535.7	535.7
1961	101.93	101.9	330.7	331.1
1962	85.02	85.0	275.9	276.1
1963	92.20	92.2	299.4	299.6

TABLE C2.—CHINA: ALTERNATIVE OFFICIAL DATA AND INDEXES FOR GROSS VALUE OF INDUSTRIAL OUTPUT, 1952–1983—Continued

	Gross value of industrial output (billion yuan)		Output index (1952 = 100)	
	A	B	A	B
1964	110.32	110.3	358.2	358.3
1965	139.39	139.4	452.9	452.9
1966	168.61	168.6	547.4	547.6
1967	145.35	145.3	471.8	472.0
1968	138.02	138.0	448.0	448.4
1969	185.35	185.3	601.6	602.2
1970	242.08	242.1	786.0	787.1
1971	278.22	278.2	903.3	904.4
1970 prices:				
1971	238.94	288.9		
1972	254.74	254.7	962.9	964.1
1973	278.86	278.9	1,054.2	1,055.7
1974	279.63	279.6	1,056.9	1,058.9
1975	321.88	321.9	1,216.4	1,218.8
1976	326.22	326.2	1,232.2	1,234.6
1977	372.83	372.8	1,408.4	1,411.1
1978	423.08	423.1	1,598.6	1,601.6
1979	459.07	459.1	1,734.4	1,737.7
1980	499.24	499.2	1,887.0	1,888.9
1981	519.88	519.9	1,964.0	1,966.3
1980 prices:				
1981	517.77	517.8		
1982	557.75	557.7	2,115.7	2,117.7
1983		616.4		2,340.1

Sources:
A: State Statistical Bureau. Statistical Yearbook of China, 1983. Hong Kong, 1983, pp. 17 and 214–215.
B: State Statistical Bureau. Guanghui ti 35-nian (Thirty-Five Glorious years). Beijing, pp. 10 and 68.

APPENDIX D

ESTIMATION OF PRICE INDEXES FOR STATE-OWNED AND FOR ALL OTHER INDUSTRIAL ENTERPRISES

A considerable amount of data on the gross value of industrial output by form of ownership valued in official constant prices is available, but the only category of ownership for which price indexes can be derived from this data is indedpent-accounting state-operated enterprises. These indexes, which are derived from data on the productivity of labor, are presented in Table D1 and compared with price indexes for industry as a whole. Because the differences for the price changes between 1970 and 1980 are not to great (except for the timber industry), the differences for the earlier years are assumed not to be great, and the 1980 price indexes for all industry (with 1952=100) that are estimated in Appendix B are used to derive a price index for state-operated industry as a whole. These indexes are used to deflate the gross values of output for individual branches of industry that are derived in Table D2. Finally, an index for all independent-accounting state-operated enterprises, which is 72.84, is derived from total GVIO in 1980 and 1952 prices.

As independent-accounting units produced for 95.5 percent of the gross value of all state-operated enterprises, the price index derived in Table D2 is used to deflate the output of state-operated enter-

prises and then derived the value of output at all other enterprises as a residual. The details of the calculations are presented in Table D3.

TABLE D1.—CHINA: A COMPARISON OF 1980 PRICE INDEXES (1952 = 100) FOR INDEPENDENT-ACCOUNTING STATE-OPERATED ENTERPRISES AND ALL INDUSTRY, BY BRANCH OF INDUSTRY

	Independent-accounting State-operated enterprises			1980 price index for all industry 1970 = 100
	Productivity in 1981		1980 price index (1970 = 100)	
	1970 yuan	1980 yuan		
Metallurgy	12,679	13,994	110.37	109.94
Electric power	21,823	21,916	100.43	100.40
Coal	2,473	3,205	129.60	129.71
Petroleum	43,991	50,801	115.48	114.98
Chemicals	17,235	15,885	92.17	90.81
Machinery	8,318	7,284	87.57	88.07
Building materials	4,717	5,022	106.47	107.86
Timber	4,153	5,323	128.17	121.75
Food	21,893	23,372	106.76	107.79
Textile	19,832	19,658	99.12	98.59

Sources:
Productivity:
1970 yuan: State Statistical Bureau, Statistical Yearbook of China, 1981, Hong Kong, 1982, p. 271.
1980 yuan: State Statistical Bureau, Statistical Yearbook of China, 1983, Hong Kong, 1983, p. 298.
Price indexes:
Independent-Accounting State-Operated Enterprises: Derived as productivity in 1980 yuan divided by productivity in 1970 yuan.
All industry: Derived from the data in Table A1.

TABLE D2.—CHINA: DERIVATION OF A PRICE INDEX FOR THE GROSS VALUE OF INDUSTRIAL OUTPUT AT STATE-OWNED, INDEPENDENT-ACCOUNTING ENTERPRISES, 1983

	Original value of fixed assets at year end (million yuan)	Gross value of industrial output per 100 yuan of fixed assets	Gross value of industrial output (million 1980 yuan)	1980 price index (1952 = 100)	Gross value of industrial output (million 1952 yuan)
Total	476,780		453,555	72.84	622,697
Metallurgy	67,576	72.02	48,668	88.39	55,060
of which:					
Ferrous metals	50,093	68.62	34,374	85.08	40,402
Nonferrous metals	17,483		14,294	97.52	14,658
Power	60,203	34.55	20,800	107.87	19,282
Coal	44,649	30.80	13,752	184.40	7,458
Petroleum	34,966	86.80	30,350	105.73	28,705
Chemicals	47,691	118.31	56,423	37.43	150,743
Machinery	113,409	85.34	96,783	53.12	182,197
Building materials	19,154	60.55	11,598	89.30	12,988
Timber	11,198	63.11	7,067	137.04	5,157
Food	22,341	281.46	62,881	126.51	49,704
Textiles	31,540	241.34	76,119	98.76	77,075
Paper	6,117	106.34	6,505	96.57	6,736
Other	17,936		22,609	81.94	27,592

Sources:
Original value of fixed assets: State Statistical Bureau, Statistical Yearbook of China, 1984, Beijing, 1984, pp. 256–266.
Gross value of industrial output per 100 yuan of fixed assets: Op. cit., pp. 267–268.
Gross value of industrial output:
Million 1980 yuan: Total: Op. cit., p. 264. Nonferrous metals and other: Derived as a residual. All Other Branches: Derived as original value of fixed assets times gross value of industrial output per 100 yuan of fixed assets.
Million 1952 yuan: Total and metallurgy: Derived as the sum of their components. Other branches: Derived as gross value in million 1980 yuan divided by the 1980 price index.
1980 price index: Total and metallurgy: Derived as gross value in 1980 yuan divided by gross value in 1952 yuan. Other branches: Table 4.

TABLE D3.—CHINA: DERIVATION OF A PRICE INDEX FOR THE GROSS VALUE OF INDUSTRIAL OUTPUT AT ALL NON-STATE-OWNED ENTERPRISES, 1983

	Output in 1983 (million 1980 yuan)	1980 prices indexes (1952=100)	Output in 1983 (million 1952 yuan)
Total	616,441	71.63	860,537
State-operated enterprises	474,778	72.84	651,809
Collective enterprises individual handicrafts and other	141,663	67.87	208,728

Sources:

Output in 1983 (million 1980 yuan): State Statistical Bureau, Statistical Yearbook of China, 1984, Beijing, 1984, p. 201.

1980 price indexes: Total: Derived from the price indexes in Table 2 with the gross values of output in 1983 from Table A1 as weights. State-operated enterprises: Table D2. Collective enterprises, individual handicrafts and other: Derived from output in 1980 prices and 1952 prices.

Output in 1983 (million 1952 yuan): Total and state-operated enterprises: Derived from output in 1980 prices and the price indexes. Collective enterprises, individual handicrafts and other: Derived as the residual.

CHINESE INDUSTRIAL MANAGEMENT: OUTLOOK FOR THE EIGHTIES

By William A. Fischer*

CONTENTS

	Page
I. Highlights	548
II. Introduction	549
III. Creating an Environment for Effective Management	550
A. Decentralization	550
B. Accountability	557
C. Incentives	559
D. Organizational Flexibility	563
IV. China's Managerial Resources	565
V. Summary	569

I. HIGHLIGHTS

To a large extent, the ability of the Chinese to accomplish their goals of economic modernization depend on the ability of industrial managers to be able to act in a professionally sophisticated and economically rational fashion. In order for this to be possible, China's leadership must create an operating environment for industrial enterprises that encourages managerial professionalism and that provides sufficient latitude for managers to be able to contribute, through their actions, to the improvement of the economic condition.

This paper looks at the situation in industrial management in China today by first considering the progress that has been made in creating an environment for effective management behavior and then by appraising China's managerial resources. The paper relies on a framework of managerial conditions that the World Bank has identified as being associated with the development of managerial effectiveness in developing countries. In particular, the current situation in China with regard to the decentralization of managerial authority, the improvement of accountability mechanisms, the nature of economic incentives for organizations and individuals and the possibilities for organizational flexibility are examined. In each of these conditions, the Chinese appear to have made substantial progress in providing an operating environment supportive of managerial effectiveness. In each of these conditions, however, there remain significant changes that still need to be achieved if the current pace of economic progress is to be maintained.

The second major focus of the paper is the nature of China's managerial corps. There is little doubt that the current situation here is far from satisfactory. Too many managers are professionally unprepared for the new challenges that they are facing and too many managers are still reluctant to take full advantage of the opportunities for aggressive and creative management that are currently evolving. China's response to this situation has been to emphasize youth and technical backgrounds in the development of a new generation of managers. This, as they are currently discovering, is not without its own problems.

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In sum, it is hard not to be impressed with the progress that has recently been made in developing a supportive operating environment for Chinese managers to work in. It remains to be seen, however, as to how quickly Chinese managers will develop professional skills that enable them to take full advantage of this new environment.

II. INTRODUCTION

As the Chinese economy rushes to achieve the ambitious goals set for it to accomplish by the end of the century there is increasing recognition both within China and abroad that the present state of China's industrial management might act as a serious impediment to what can actually be attained. In a recent speech on "prospects for modernization in China," given at the Chinese University of Hong Kong, Ma Hong, president of the Chinese Academy of Social Sciences, identified poor management practices and resources as being partly responsible for the unsatisfactory economic results in China.[1] The gravity and enormity of the present state of Chinese management practice was indicated in this same speech by Ma's observations that "According to sample investigation, less than one third of the leading cadres in our country's large and medium-sized enterprises are well versed and know how to run them." Similar concerns are appearing in the articles in the Chinese press which interpret Deng Xiaoping's deep concern over the state of management within the Chinese economy [2] and, in fact, Deng has been quoted by a top-ranking member of the State Economic Commission as having said, on more than one occasion, that the two major problems in China's factories are: 1. ineffective workers and 2. ineffective managers, with the latter leading to further difficulties in the attempt to create correct standards in management development.[3] The particular frustration underlying all of this concern has to do with the fact that good management is not immediately influenceable through government policy nor other direct and indirect means of persuasion. Instead, the improvement of China's managerial resources will take both time and a commitment on the part of the government to create an environment that is hospitable to allowing the fuller expression of managerial contributions to economic development by facilitating rather than constraining good management practice. Whether or not this can actually be accomplished within today's China remains in doubt. The purpose of this paper is to review the evidence to date which is indicative of China's prospects for success. It will do this by first considering the nature of the environment for managerial practice which is currently evolving within the Chinese economy through the combination of reforms and tradition, and then by looking at China's ability to create a managerial corps that is able to take advantage of this new environment.

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[1] Hong Kong Standard, September 29, 1983, as quoted in China Report-Economic Affairs, JPRS 84564, 19 October 1983, p. 99.

[2] An example of such interpretations appears in: Guo Daofu, "An Attempt to Discuss Deng Xiaoping's Economic Thinking," Jingji Yu Guanli Yanjiu, as translated in China Report-Economic Affairs, 21 February 1984, pp. 1-17.

[3] Yuan Bao Hua, first vice director of the State Economic Commission in a speech given to the participants at the National Center for Industrial Science and Technology Management Development at Dalian, July 6, 1984.

III. CREATING AN ENVIRONMENT FOR EFFECTIVE MANAGEMENT

In the World Bank's 1983 World Development Report,[4] a survey of managerial practices in developing countries identifies several factors as being especially important to the development of effective economic management, particularly in those situations where experience with state agencies has been discouraging and where the introduction of more discretion in managerial decision-making among economic units is considered attractive. China, itself, is just such a nation and is presently in the very midst of a major adjustment of its economy from highly centralized decision-making to a system with a not-insignificant degree of autonomous responsibility. The factors identified by the World Bank[5] should, therefore, serve as a useful reference to the degree to which the Chinese have been able to develop an environment to foster effective management. Four factors will be considered here in appraising the recent Chinese experience. They are: decentralization—the degree to which economic decision-making has effectively been decentralized within the economy; accountability—the means by which the performance of economic units and managerial practice is appraised; incentives—the means available to induce higher organizational and individual performance; and organizational flexibility—the ability of economic organizations to evolve and adapt to highly changing responsibilities and demands in a responsive manner. Each of these factors is critical in establishing the nature of the environment and constraints within which an improved managerial corps will labor. By addressing each of these it should be possible to evaluate the latitude that China's new generation of managers will be permitted in the pursuit of their professional objectives.

A. DECENTRALIZATION

In the three and one-half decades since they took control of the country, the Chinese Communist government has initiated, and terminated, a number of wide-reaching economic reforms designed (depending on the particular reform) to make the economy either more responsive to criteria of economic efficiency and/or consumer needs or else to make the economy a more integrated facet of a coherent ideological movement. The present system of reforms initiated by Deng Xiaoping in the late 1970's moves further than any previous attempt towards the freeing-up of managerial autonomy and responsibility. One of the key factors in this policy is the decentralization of economic decision-making through a variety of approaches designed to increase the independence of the basic economic unit vis-a-vis the central ministries in Beijing.[6] To characterize such a policy, coming as it has after a period of economic and social chaos, as "dramatic" is an understatement. Indeed, the People's Daily has likened it to "the great revolution of socialist transformation of private ownership of the means of production in the 1950's," in terms of its significance.[7]

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[4] International Bank for Reconstruction and Development, Annual Development Report, 1983, (Washington, D.C., World Bank, 1983).

[5] These factors are summarized in Pierre Landel-Mills, "Management: a limiting factor in development," Finance and Development, September 1983, pp. 11-15.

The key to the decentralization of China's economy in the present reform movement is the granting of increased autonomy to the managers of China's basic economic units. In the case of industry this means that some enterprises are being provided with the opportunity to decide what they will produce and in what amounts, who they will sell to, and how they will allocate the profits that they retain after paying taxes. In fact, for all intents and purposes, these enterprises have almost total responsibility for everything except product pricing, financial and market diversification, direct interaction with foreign markets and technologies, and labor hiring and firing. This "extensive" autonomy far surpasses any similar liberalization attempted by previous economic policies. Typically, such enterprises are found in the light industries serving consumer markets [8] but, increasingly, they are also being seen as role models for future loosening of constraints in other industries, as well. Furthermore, one of the unique features of the present liberalization initiatives, compared with earlier experiments, is that they are being applied in the retail and service sectors as well as in the manufacturing sectors, thus making for a more coherent reform of the entire economic system. Retail units with extensive autonomy, for example, are deciding what products they will stock, who they will be supplied by, what their inventory levels will be, and how much service they will provide, in a direct analog of the decisions being made in the producer enterprises.[9]

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[6] A 1983 article by Ma Hong notes the differences in the reforms of the nineteen-fifties (which are frequently mentioned in reference to the present reforms) and the new economic policies as being: 1. formerly the state assumed responsibilities for profits and losses, the enterprise lacked autonomy in operational management, and the success or failure of management was not linked directly to the material interests of the enterprise and its personnel; 2. within the enterprise, there was a tendency of egalitarianism regarding renumeration of workers' labor, a tendency of eating from the big pot of rice [i.e., one's rewards were more dependent on the overall performance of the enterprise than on one's individual performance], making no difference if one worked more or less, performed well or poorly. There was a lack of strong economic motivation and pressure for the enterprise and its personnel to develop production and improve operational management. Ma Hong, "Preface," in A Study of the Operational Management of the Shoudu Iron and Steel Company: What Can be learned from Shoudu Steel's Reforms," as translated in China Report-Economic Affairs, JPRS 84156, 18 August 1983, pp. 35-41.

[7] Liang Wensen and Shen Liren, "The Reform of the Economic System is a Deepgoing Revolution," Renmin Ribao, as translated in China Report-Economic Affairs, JPRS 83123, 23 March 1983, pp. 1-3.

[8] Within industries, and within enterprises, different product lines are actually treated differently in terms of autonomy. This can be illustrated within the responsibilities of the Ministry of Light Industry where in 1984 refrigerator and washing machine production were controlled by the State Planning Commission, electric fans, vacuum cleaners, air conditioners, rice cookers, irons and desk lamps were controlled by the ministry, and where all other products were uncontrolled and left up to the enterprises in competition with one another.

[9] An example of this can be seen in the ability of Guangzhou's Nanfang Daxia department store to improve its national standing from ninth to first among large Chinese department stores for reasons that they attribute to the successful taking advantage of extensive autonomy.

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Besides the enterprises being granted extensive autonomy, there is a second, somewhat larger set of industries where managerial autonomy has been increased from the prior state of being "little more than a plant manager whose marketing decisions had been made for them",[10] to the point where they are increasingly responsible for marketing both a share of the output quota assigned them as well as any additional production that they can produce in an effort to add to profits and bonuses [i.e., limited autonomy]. Such enterprises include both light industries producing products in scarce supply, or considered desirable for the central planners to retain some control over, as well as a variety of heavy industries and a number of factories controlled by the defense ministries. There are growing indications within the Chinese press that limited autonomy is to be a transition state as nearly all Chienese enterprises move towards extensive autonomy, but for the present enterprises with limited autonomy represent a somewhat different managerial situation from the enterprises with expensive autonomy. There remains, in addition, a third set of enterprises, in industries regarded as essential for national stability, where little has changed from the way in which the planned economy has always run [i.e., no autonomy].[11] Since this paper is concerned with reform in the managerial system in China, it will tend to concentrate on the first two types of enterprises, as they appear to be most indicative of current Chinese experimentation with reform measures.[12] It should be remembered, however, that despite the excitement associated with the situation in enterprises with extensive and limited automony, there still remains this third, virtually unchanged sector that plays a highly significant role in the national economy, as well.

In those industries where extensive autonomy has been granted, the fundamental nature of the manager's role has truly been changed. Managers in enterprises with extensive autonomy have significant, if not always total, responsibility for such decisions as: determination of product mix, production volume, advertising, distribution, and product development policies, in direct competition with other factories. They have the ability to borrow capital from a variety of lending institutions to support their investment plans and, in some cases, have able to effect changes in product pricing.[13] Recent labor policies are even providing the enterprise man-

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They now have authority to transfer, hire and fire the managerial staff and to discipline the workers, it is now responsible for its profit and loss statement and the allocation of retained earnings within guidelines (although it only retains 8.1% of its profits after paying taxes). It now determines what it will stock and from whom it will buy (prior to being granted extensive autonomy it bought from 18 factories, in late 1983 it was buying from more than 500 factories); has the ability to adjust the prices of products suffering "sluggish sales;" and is responsible for its own planning. Shijie Jingji Dao Bao, as translated in China Report-Economic Affairs, JPRS 84310, 13 September 1983, pp. 4-5.

[10] Richard H. Holton, "China Discovers Marketing," paper presented at the American Marketing Association's 1981 Marketing Conference, San Francisco, CA., June 1981.

[11] A useful taxonomy of the principal forms of enterprise autonomy that the Chinese have experimented with can be found in Mun Kin-chok, "China's Management System and State Enterprise Behavior," Journal of Contemporary Business, vol. 10, No. 3, 1981, pp. 29-45.

[12] "Enterprises Granted Expanded Freedom," China Daily, May 15, 1984, p. 1; Amanda Bennett, "China Tries Again To Revitalize Industries," The Asian Wall Street Journal, May 16, 1984, p. 1. Yuan Bao Hua indicated this as well in his speech at Dalian.

[13] A particularly good account of such expanded new managerial prerogatives and responsibilities is presented in Bill Byrd and Gene Tidrick, Adjustment and Reform in the Chongquing

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ager with the beginnings of flexibility in workforce sizing through firing perogatives and the ability to hire "contract" workers who are, in effect, on permanent probationary status. Such decentralization of management authority and responsibility far exceed any previous policies designed to improve economic effectiveness in the People's Republic of China and have come as something of a shock to managers used to the traditional ways of performing. As one factory manager put it: "As factory directors, we have now to set our eyes on the figures and make mental calculations on our operations all day long. As a factory director in these two years, my work has been much more intense than in the dozens of years on the past."[14]

It seems clear from the limited evidence available[15] that in those cases where increased autonomy is being practiced there has been an improvement of both market performance and economic rationality. The appearance of improved product offerings, heightened attention to quality and aesthetics, extended warantees, and the creation of convenient service departments for repair work, are all examples of how managerial initiative has been unleashed with the increased decentralization of managerial autonomy and responsibility. Furthermore, evidence of enterprise "bankruptcies" and the replacement of ineffective managers testify to a degree of economic rationality not seen in Chinese industry for a long time. Although "objective," "hard" data is difficult to obtain, the evidence of the success of the decentralization policies are observable everywhere on Chinese streets. In short, in those industries where extensive autonomy has been granted, the market is showing sure signs of working through the proliferation of new and improved products and services, and through heightened consumer satisfaction, and in

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Clock and Watch Company, World Bank, April 1984. Control over product pricing remains an unusual perogative for enterprise managers in even the most liberalized enterprises. In the Chongquing Clock and Watch Company case, pricing changes were accomplished apparently in deliberate contravention of prevailing policies, knowing full well that deficiencies in the information system would result in a lag of several years before the authorities would force a correction. The author's interviews in 1984 uncovered similar strategies in other firms. In addition, limited pricing flexibility is offered in some industries as a reward for superior product quality (e.g., a 5%-15% premium is allowed, at management's discretion, for products adjudged as "excellent" in the textile industry). There is also, apparently, considerable discretion allowed in the pricing of new products, which serves as an [unintended ?] inducement to undertaking product innovation. In other situations, an enterprise unable to adjust a product's price can, instead, market direct to the customer or retailer and, consequently, gain a larger profit margin than if they sold to a wholesaler. The author is aware of a large metallurgical factory which is under the state plan and which has little autonomy, if any, which is currently using market research to discern its competitive advantages vis-a-vis soon-to-come-on-line competition so that it can negotiate with the ministry to obtain plans to produce the product mix that will yield it the greatest profit despite its lack of control over prices.

[14] Tian Jiyuan, "Some Questions of Understanding Concerning State-Run Enterprises Adopting the Practice of 'Replacing Delivery of Profits With Payment of Taxes'," Renmin Ribao, 7 February 1983, p. 2, as translated in China Report-Economic Affairs, JPRS 83123, 23 March 1983, pp. 4-11.

[15] Such data is limited in generalizability and often of questionable realiability. Mun, for example, provides a collection of data from 1979 and 1980, all for enterprises in Sichuan province, which appears to indicate the success of granting enterprise autonomy. More recent data for Sichuan is found in an editorial: "Changing Submitted Profits of State-Run Enterprises to Taxes is a Direction of Reform—On Firmly and Orderly Carrying Out Economic Reforms," Sichuan Ribao, 14 April 1983, p. 1, as translated in China Report-Economic Affairs, JPRS 84188, 25 August 1983, p.10. Statistics on eight experimental enterprises in Guangzhou are provided in "Outstanding Economic Results Achieved in Eight Experiment Enterprises Throughout the Province," Nanfang Ribao, 4 January 1983, p. 1, as translated in China Report-Economic Affairs, JPRS 83265, 14 April 1983, pp. 1-2. The case of the Chongquing Clock and Watch Factory, cited above, also provides testimony to increased economic rationality associated with the gaining of autonomy by enterprises.

those units that are successfully competing in this new environment enterprise management is proving to be quite capable.

Representative of the type of manager envisioned by Chinese authorities as being required in a world of extensive autonomy, and certainly one of the most controversial figures today in Chinese industry, is Bu Xinsheng, the director of the Haiyan Shirt Plant in Zehjiang Province.[16] Bu, who has become a media event in his own right with frequent newspaper stories written about him, television interviews, and lecture tours to large cities, runs his small collective factory in a manner which is distinctly different than traditional practice would suggest[17] and in a way that many people feel is indicative of the "autonomous" Chinese manager of the future.[18] Bu appears as both extemely committed to new products and better product quality and dedicated to the full development of his factory's human resources. Bu has, for example, selected his own management team, including younger people (the average age among the vice-directors in his factory is 36, and workshop leaders it is 30), and taken chances on people who would not ordinarily be selected for such positions of responsibility (for example, he is reputed to have placed a former trouble-maker known for being skillful in the manipulation of "quanxi" (personal relationships used as a form of influence among kin and non-kin relations) into the position of sales director for the enterprise, in order to constructively exploit this fellow's abilities). Bu, furthermore, has fired non-performers in his factory, he has attempted to tie wages directly to work performance, he has written a factory song and established a factory uniform for workers, and has encouraged industrial financing of university activities in recognition of the role that universities play in the training of industrial personnel. Perhaps the departure that Bu represents from concepts of managerial professionalism in China in the past is best caricaturized by his comment that: "My goal is to create three famous brands of shirts. When I die, I want no wreaths, just the logos of these brands placed on by ashes box."[19] The lesson that Bu represents is not being lost on Chinese managers. According to one factory manager who is an admirer of Bu's, the lesson that he presents to other Chinese managers is that: 1. he really takes on all responsibility; and 2. he runs the factory as a business manager instead of merely serving as a production clerk.

The image created by Bu Xinsheng is one of a heroic figure succeeding on his own by tackling formidible traditional impediments to successful managerial practice within his enterprise. Not all such impediments exist within the boundaries of the enterprise, however. Some of the real constraints to realizing the benefits associated with increased decentralization of managerial autonomy are to be found outside of the enterprise, in the broader interrelationships of the economic system of which it is a part. Associated, for example, with the incomplete and unequal granting of autonomy to various sectors of the economy, and various enterprises within those sectors, are inefficiencies that occur when units are unwilling to compromise over strategies that each has devised to yield them maximum returns. In an economy unfamiliar with the possibilities of "non-zero-sum games" among organizations with different missions, such conflicts can often frustrate the full expression of managerial autonomy. There is considerable evidence, for example, of differences between producing units (factories) and the primary traditional distribution units (commercial departments) over appropriate roles in the distribution system. An example of this could be seen in 1983 with television sales in Jiangsu province.[20] When sales of televisions slackened during the year the commercial departments were disinclined to buy them, leaving the factories with large inventories. When sales picked-up however, the factories chose to sell them direct (174,000 sets in the first nine months) thus gaining a much larger profit margin and leaving the commercial departments with only a small amount (14,200). Such unpredictability has led to under-ordering by the retailers who fear the risks of having too much inventory in slow markets and direct competition with producers in good markets. Furthermore, when commercial departments place orders for commodities enjoying a good market, the factories want them to also add orders for slow-selling items as well. Similarly, a factory manager in the textile industry complains about the inability of his factory to sell direct to the customer because the authorities "want to preserve the rice bowl of the large department stores." Such "technical" problems most likely reflect a temporary period of "getting comfortable with the market mechanism," yet they will be increasingly more common unless decentralization is allowed to spread both in terms of prerogatives and scope. While it is true that Chinese managers have considerable skill and experience in finessing both manufacturing and supply frustrations and that there is enough flexibility in their system to allow them to overcome such irritants, the variations in autonomy which exist in the economy and the remaining constraints on managerial prerogatives will continue to impede economic progress in the future.

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[16] This comes from both interview data collected by the author and from published sources, such as: Huang Senhua, "Problems of Serious Losses in Exports Discussed," Guangzhou Ribao, 23 December 1982, p. 4, as translated in China Report-Economic Affairs, JPRS 82905, 18 February 1983, pp. 71-72.

[17] Wang Ningjun, "A Controversial Entrepreneur," China Daily, April 12, 1984, p. 6. Bu Xinsheng is shown in a photograph identifying him as a new member of the Chinese People's Political Consultative Conference, in Beijing Review, vol. 27, no. 23, June 4, 1984, p. 21.

[18] Although it is difficult to stereotype the "traditional" Chinese manager, Bu Xingsheng is certainly far different than the literary figure Manager Qiao who was so prominently used to promote what was considered exemplary managerial style in 1981. See Andrew G. Walder, "Industrial Reform In China: The Human Dimension," in The Limits of Reform in China, East Asia Program, The Wilson Center, Washington, D.C., May 3, 1982, for an excellent discussion of Manager Qiao and the implications of this figure.

[19] Li Haibo, "Bu Xinsheng, a Bold Reformer," Beijing Review, vol. 27, no. 29, July 16, 1984, pp 19-23.

A considerably more significant problem, on the other hand, that is associated with the decentralization of managerial autonomy, has to do with the appearance in several industries of substantial excess manufacturing capacity. The danger embodied here involves not only the economic impact of such misallocation of resources but, maybe more significantly, the possibility that such conditions might be interpreted by the advocates of hard-line central planning as representing a "planned economy out of control." Recent overcapacity in Chinese industries generally stems from a recognition of high profit margins in a number of rapidly growing consumer markets and a desire on the part of industrial and public officials to gain a "piece of the action". In those cases where the numbers are available the picture they provide is staggering. In early 1984, for example, there were 130 automobile plants operating in China, with more than 110 of them producing less than 1000 automobiles each year, and 17 producing less than 100. In 1979 China had 1,496 wineries run by units at or above the county level with a production capacity of 3.5 million tons which could basically satisfy the market demand. In 1980, however, an additional 12,000 wineries were built.[21] The risk, here, is substantial, not only to the new enterprises, who frequently find themselves unable to sell large amounts of inventory to a market unfamiliar with their brand name or sceptical of their quality, but also to the more established enterprises in the industry who find themselves hardpressed to secure supplies in competition with so many inefficient competitors. An even more insidious consequence of such unbridled expansion is that within it lies the possibility of threat to the entire policy experimenting with enterprise autonomy. Cases of widespread overexpansion of manufacturing capacity and enterprise failure create the type of situations that encourage opponents of economic liberalization to jump back into the market and try to reduce the amount of autonomy available. In the case of the watch industry, for example, excess manufacturing capacity was met by the reimposition of production quotas on the enterprises involved.[22] In the Shanxi coal industry, excessive competition led to the formation of a provincial company with responsibility for "rationalizing" the industry through "unified planning for the transportation and sales of coal produced by all the mines in the province . . . ".[23] Such actions represent real evidence that not only are the results of the policies of decentralizing managerial autonomy being watched closely but that, also, there remains considerable reluctance to such liberalization.

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[20] "Reduced Purchases and Inventories in State-Operated Commercial Enterprises of Jiangsu Province; the Jiangsu Branch of the People's Bank Suggests to All Industrial Departments Energetic Increases in the Production of Readily Marketable Products and to All Commercial Departments Active Organization for Ample Supplies of Goods and Expansion of Sales," Jingji Ribao, 28 November 1983, p. 2, as translated in China Report-Economic Affairs, JPRS-CEA-84-016, 27 February 1984, p. 66

From a long-term perspective, without enterprises having the ability to attract and hire new specialists and adjust workforce competencies to respond to market changes, with virtually no authority to diversify product offerings in any significant way, and with very limited ability to adjust prices, it is difficult to see how the government can avoid being pressed to decentralize managerial autonomy even more, to include the now-denied prerogatives, or else risk a significant stalling of the economic momentum being currently experienced. In a sense, once managerial responsibility begins to be decentralized, any amount short of complete autonomy is almost certain to prove unsatisfactory in the long run. So, on the one hand, considerable progress in the decentralization of managerial responsibility has been made recently within China and, on the other, considerably more will have to occur in order to guarantee an operating environment conducive to the full expression of managerial performance in the future.

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[21] Even at the local level such overexpansion is found. Zhangjiakou prefecture produces 1.5 million leather hides every year, in five large tanneries having an annual production capacity of 8 million hides. Despite this existing overcapacity, during 1982 and 1983 Zhangjiakou prefecture built more than 200 additional small tanneries. This and the examples cited in the text were reported in Xu Wentong, "Overcome Overlapping Contruction and Improve the Efficiency of Capital Construction Investment," Jingji Lilun Yu Jingji Guanli, no. 5, 25 October 1983, pp. 8-12, as translated in China Report-Economic Affairs, JPRS-CEA-84-011, 10 February 1984, pp. 7-15.

[22] Byrd and Tidrick, "Chongquing Clock and Watch Factory" ibid.

[23] Taiyuan Shanxi Provincial Service, 10 Febraury 1984, as reported in China Report-Economic Affairs, JPRS-CEA-84-016, 27 February 1984, p.36.

B. ACCOUNTABILITY

The increased managerial autonomy that characterizes recent economic policies in China has brought with it subtle changes in the accountability mechanisms by which enterprises and managers are now appraised. The eight great standards (production volume, quality, profit, costs, labor efficiency, consumption of resources, capital utilization and production value), which have long been the criteria for enterprise evaluation,[24] are still in use and even enterprises enjoying extensive autonomy are subjected to annual reviews of their performance against these indicators (in at least one factory interviewed by the author, with extensive autonomy in the textile industry, these standards were evaluated quarterly by their bureau in the municipal government, as well as annually by the provincial bureau). Furthermore, workshops within enterprises are treated as responsibility centers and their managers are also appraised by use of the eight great standards as well as by a host of social considerations such as the performance of the workshop in combatting pollution,[25] family planning among the workers, and a variety of similar measures (leading one workshop manager to complain that they were appraised by "22 or more standards instead of only eight"). Despite the longevity of the eight great standards as the primary formal measures of economic performance, however, the primary emphasis, today, in enterprise appraisal for those enterprises experiencing some form of autonomy is profit. Profit is the key criteria reviewed by an enterprise's higher authorities; profit is the measure most typically discussed in the Chinese press; and profit is the key factor that an enterprise's workers are watching. The latter is of considerable importance as the workers' standard of living increasingly depends upon the enterprise's ability to generate profits, out of which come not only higher monetary bonuses but, also, such important amenities of life as housing.

The determination of profit among Chinese enterprises is not, however, an entirely unambiguous matter. In an economy where prices are not free to fluctuate and where many, in fact, have been fixed for nearly thirty-five years, it is often impossible to clearly interpret profit data[26] (an issue which also undermines the integrity of the "production value" standard among the eight great standards). As a result, enterprises are competing for evaluative purposes on the basis of what one manager characterized as different "starting points." The wide range of experimentation with taxes, incentives and resource allocation autonomy which is presently going on in China adds yet another level of complication to an already complex measure, as does inadequate information and statistics.[27] Despite this, profit remains the key determinant of enterprise performance and enterprises failing to earn profits are, indeed, being allowed to "go out of business."[28]

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[24] In 1957, twelve standards were being used which were virtually the same as the present eight great standards. According to Kraus, one of the consequences of such an evaluative mechanism was that: "The assignment of so many key numbers . . . resulted in a narrowing of the disposition possibilities and authority of the firms; the internal planning process of the firms for the securing of the most efficient use of resources was thereby neglected. In addition to this the usefulness of the key numbers was limited due to the defects in the statistical system." Willy Kraus, Economic Development and Social Change in the People's Republic of China, (New York, Springer-Verlag, 1982), p. 71.

[25] See, for example, Robinson, Dill and Li, "The Jin Hua Steel Mill," in Hugh Thomas and William A. Fischer, The Dalian Casebook, in process.

Aside from the more obvious measures of profit and the eight great standards, employed by economic authorities to appraise organizational performance, there are a variety of other evaluative measures which also serve to establish managerial accountability. Managers are required to present an annual report to the workers' congresses in their enterprises and, on an ongoing basis, are accountable to the executive council of the congress. In truth, however, despite rather vigorous reporting of enforcement of the role of workers' congresses in the enterprise,[29] the congresses appear, in interviews, to serve more as an advisory and communications role than as evaluators.[30] Similarly, the enterprise party committee appears to only be theoretically involved in the accountability of management, unless ideological issues are involved. Perhaps of more immediate and tangible impact on managerial accountability are the recent audits that have been conducted throughout China in an effort to identify instances of tax confusion and evasion.[31]

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[26] Byrd and Tidrick state that in the watch industry the state sets a minimum price to protect high-cost producers and safeguard budget revenues. In April of 1984, they report that the minimum retail price for a first grade men's watch was 70 yuan and the range of production costs in Chinese watch factories was 11.02 yuan to 41.37 yuan. Byrd and Tidrick, "Chongquing Watch and Clock Factory," ibid.

[27] A vivid illustration of the generally low level of information available to Chinese managers was found in the results of a study of 1839 enterprises surveyed in Shanghai, in 1982, of which only 43% had fairly complete original records, 52% had fairly complete and reasonable manhour target records, 61% had fairly complete and reasonable raw material consumption target records, and only 69% had expense target records. Gong Xuelin, "Several Problems To Be Solved in Improving Economic Results," Shehui Kexue, no. 10, 15 October 1983, pp. 33-37, as translated in China Report-Economic Affairs, JPRS-CEA-84-013, 21 February 1984, p. 56.

[28] In 1983, the author witnessed the death-knells of the Dalian bicycle factory as it was first allowed to reduce prices drastically, in an attempt to create revenues and then, finally, when price cutting failed, was shut down by municipal officials. Interestingly, in 1981 and 1982, the author's interviewing failed to reveal any evidence that factory managers actually took the threat of enterprise "failure" very seriously. By 1984, however, they had become "believers."

[29] According to a report from Chengdu, the organizational department of the provincial CPC committee, the political department of the provincial planned economy committee, the provincial federation of trade unions, the office of science and industry of the provincial national defense committee and the provincial urban and rural construction and environmental protection department have decided to make a comprehensive inspection of enterprises throughout the province to check implementation of the provisional regulations for the work of grassroot organizations of the CPC in industrial enterprises. The focal point of the inspection is to see whether or not the enterprises have appropriately strengthened the leading bodies of the party committees, administrative offices, and trade unions, whether or not the appraisal of enterprise leading cadres is carried out democratically by the workers' congress, whether or not the working system of party committees, administrative offices, and workers' congresses is appropriately established and perfected, and whether or not the system of democratically electing factory directors and managers is practiced. Sichuan Provincial Service, 23 January 1984, as reported in China Report-Economic Affairs, JPRS-CEA-84-012, 17 February 1984, p. 61.

[30] An idealized version of how the workers' congress should work in an enterprise, as seen by the Chinese Academy of Social Sciences, appears in China Report-Economic Affairs, 27 March 1984, p. 12.

[31] Examples of the astounding amounts of taxes due the state which have resulted from these audits can be found for Guandong province in "Telephone Conference Called Yesterday by the

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A more intangible yet potentially significant development regarding managerial accountability is that there appear to be signs of an evolving sense of managerial professionalism arising among China's managerial corps that will, if allowed to flourish, undoubtedly express itself in increased accountability mechanisms. Expectations of the performance of other managers appear to be higher than in the past [32] and frustrations with inadequate management practices are no longer suppressed. Not the least of such developments is the concept of a career which, however alien it may have appeared five short-years ago, is clearly an important concern to today's Chinese manager.[33]

In sum, the nature and mechanisms for managerial accountability based on economic rationality within Chinese industry appears to be evolving in terms of scope, professionalism and precision. Politics is no longer in command at the level of operational or even strategic decision-making within the enterprise. Increasingly, the Chinese manager is expected to perform in an economically efficient and effective manager or be replaced. Furthermore, the new generation of Chinese managers appear to understand the responsibilities that they face and seem to be responding to them in an aggressive fashion.

C. INCENTIVES

Over the last thirty-five years, China has vacillated repeatedly between emphasizing material incentives and moral suasion in an effort to motivate higher performance in industry. Today, the emphasis is clearly focused on material rewards at both the organizational and individual level. Despite China's rich experience with a variety of incentive experiments,[34] however, it is still not certain that the incentives currently in place to motivate and direct enterprise performance effectively complement those being used to motivate and direct individual work efforts. In order to consider the nature of incentives in China's industrial system, it is useful, therefore, to first discuss incentives at the enterprise level and, then, incentives at the individual level.

Provincial Government Made Further Dispositions to Resolutely Carry Out the Provincewide General Inspection of Financial and Economic Discipline Work to the Finish—Up to the End of November, the Inspections May Raise Budgetary Receipts Throughout the Province by 100 Million Yuan, of Which Over Half Has Already Been Paid Into the Treasury." Nanfang Ribao, 15 December 1983, p. 1, as translated in China Report-Economic Affairs, JPRS-CEA-084-016, 27 February 1984, p. 42, and for Shanghai in Huang Jiasheng, "Outstanding Success in Shanghai's Overall Financial Inspections," Jiefang Ribao, 21 December 1983, p. 1, as translated in China Report-Economic Affairs, JPRS-CEA-084-020, 20 March 1984, p. 42.

[32] Examples of the growing accountability of Chinese managers resulting from increased expectations and professionalism are to be found in the case of an enterprise facing the requirements to remit their profits on time. China Report-Economic Affairs, 27 March 1984, p. 22. And the shortage of working capital in another firm as result of having to pay taxes on time. China Report-Economic Affairs, 27 March 1984, p. 25.

[33] Five years ago, when the Dalian program first began, managers responded to queries about their careers with laughter and comments such as "we don't think about such things in China." Today, however, managers are not only not reticent to talk about their careers to date, they are also willing to allow that participation in the Dalian program will be of advantage to them in aspiring to positions of greater responsibility in the future.

[34] I have argued elsewhere that China's rich experience with a variety of incentive and organizational experiments makes her a valuable site for research into the managerial process. See: William A. Fischer, "China as a Subject for the Study of Managerial Practice," working paper, January 1986.

At the level of the enterprise, the relationship between economic performance and incentives is relatively straightforward. As noted in the discussion of accountability, in those enterprises enjoying some form of economic autonomy the key determinant of performance is profit. Profit is also the source of retained earnings available to the factory manager for worker bonuses and welfare. There are, however, a considerable number of different approaches to determining the share of profit that will be retained within the enterprise and the share that will be forwarded to the state in the form of taxes. In a sample of 42 enterprises from a cross-section of industries surveyed in 1984, the average percentage of profit retained by the enterprise varied from 1.6% to 30%, with an average percentage profit retained by the enterprise of 14.14%.[35] This great variation in the ability of a Chinese enterprise to retain earnings contributes to the prevailing confusion over just how well the organizational incentive system is working in China.[36] Secondly, because of the irrationalities within the price system, the profit earned and, hence, the earnings retained, can often be more directly attributed to factors totally beyond management's control than used as an unambiguous and direct measure of managerial performance.[37] Furthermore, the reliance on a base year to develop the ratios which determine an enterprise's taxation rate and the ability of the enterprise to negotiate changes in this rate suggest still other elements of subjectivity which affect the clarity of the linkage between the economic performance of an enterprise and the rewards to be gained.

One of the most pervasive considerations that must underlie any discussion of organizational incentives in Chinese enterprises is the concept of the "iron rice bowl." This metaphor graphically symbolizes the apparent unchallengeable security of large, important state-led enterprises (who do not have to worry about dropping their rice bowls because they will never break—the enterprise is too important to allow the state to let that happen—as if they are made of iron) and who, as a result, are traditionally described as laggards in terms of productivity and innovation by observers of the Chinese economic scene.[38] Recent econometric analysis tends to confirm these impressions as to productivity, at least as of 1980,[39] but since then the government has undertaken a vigorous campaign to disabuse managers and workers in these "iron rice bowl" enterpirses from the belief that they are exempt from expectations of high performance. It is still too early to appraise the results of this campaign with any confidence. Nonetheless, given the relative wealth of resources available to such large enterprises, in an economy where advanced technology and skilled personnel are scarce, the inculcation of a culture of innovation among these enterprises would appear to be an essential prerequisite for continued economic progress.

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[35] William A. Fischer, "Firm Size and Technological Activity Among Chinese Enterprises: 1980 and 1984 Compared," working paper, January 1986.

[36] A 1984 article in the Chinese journal Finance and Economics has noted that "In the past 3 years, . . . there were more than 20 methods [of profit sharing] under different names, and new methods are still emerging. The enterprises are permitted to choose their own method in the name of expanding the scope of experiments, and their choice is decided by considerations of their own benefits." Yuan Yusheng, "Correct Handling of Profit Distribution between State and Enterprise," Caijing Kexue, no. 4, September 1983, pp. 9-13, as translated in China Report-Economic Affairs, JFRS-CEA-84-018, 6 March 1984, p. 17.

[37] This was presumably the sort of problem that Premier Zhao was referring to at the national science and technology awards meeting in October 1982, when he noted: "Last month I went to Liaoning and was told that the Shenyang Water Pump Plant had developed twenty-two new products. Among these, there are five kinds of high-efficiency water pumps that can provide good effectiveness for society. However, the problem of their prices could not be resolved. As a result, the plant lost 300,000 yuan and decreased bonuses so that the workers felt wronged." Zhao also added that the problem had ultimately been resolved by means of a contract with the Daqing Oil Field which would purchase the water pumps from them [presumably at the state-controlled price which is apparently significantly under true market-value and, likely, the cost of production, as well] and will return a fixed amount of the benefit that they obtain from energy savings to the [Shenyang] enterprise. Qian Jiaju, "A Discussion of Economic Effectiveness." Shijie Jingji Daobao, 20 December 1982, p. 3, as translated in China Report-Economic Affairs, JPRS 82945, 25 February 1983, pp. 38-41.

[38] For a discussion of the debate over firm size and performance in Chinese industry see: Fischer, "Firem Size and Technological Activity . . . ." ibid.

There currently seems to be almost unanimous support within Chinese industry for reliance on material incentives as the primary means of stimulating motivation within the workforce. Interviews conducted by the author in 1984 [40] found widespread employment of performance-related individual incentive systems within Chinese enterprises, yet almost every system was unique to the enterprise employing it. While the managers interviewed all felt strongly that the use of material incentives contributed directly to improved productivity little hard data exists to actually test this. Despite their present presumed success, however, there are a number of reasons to question just how useful the existing material incentive systems will be in the future, Walder, for example, has suggested that the original impact of material incentive schemes profited greatly from the conditions which had been created by attempts at radical egalitarianism during the Cultural Revolution period (e.g., no raises for most workers during the period between 1963–1977; no bonuses, at all, for performance-related or skill-acquisition activities; slack work discipline and low performance expectations).[41] These initial conditions have been remedied to some extent by three general wage increases since 1976 and by a period of generous bonuses in the late nineteen-seventies—early nineteen-eighties. Now, the Chinese manager faces some hard questions about the continued effectiveness of incentives.

In a recent review of Chinese labor incentive systems, Walder [42] provides a useful catolog of potentially serious problems, among which are included: labor restiveness over bonus equity, a hesitance to move away from equalization of bonuses, manipulation of information systems, and bonus inflation. In short, Walder suggests that the present incentive systems might very well create more problems than benefits. Interviews with Chinese managers and a review of the Chinese press fail to negate any of Walder's list of problems, although the issue of labor restiveness was never directly discussed. Bonus inflation certainly appears to have existed in the early nineteen-eighties and was met by a series of government policies attempting to control it. Apparently, although these policies differ by industry and by province, a limit on bonus payments by enterprises was imposed throughout China in 1981-1982. This limit took several forms but was most generaly either a limit on the percentage that any individual could receive in the form of bonuses or, alternatively, a limit on the average number of months of the enterprise's total wage bill that bonuses could represent, The advantage of the second policy is that it at least allows the enterprise manager discretion in the rewarding of individual performance, if only within the general constraints of an overall bonus ceiling. Today while there still exists a wide variety of situations affecting the payment of bonuses by enterprises,[43] it appears that some general movement is occuring towards controlling bonus payments through the imposition of a bonus tax on the enterpirse. This tax, which in progressively tied to the enterprise's total bounus payments, and which can range up to 300% of the bounses paid, appears to be a source of real frustration to Chineses managers who complain that they don't have enough money to pay both the bonuses and the tax.

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[39] While productivity remained roughly constant in the state sector between 1979 and 1980, the productivity of collective enterprises rose 16.6 per cent. Robert Michael Field, "Slow Growth of Labor Productivity in Chinese Industry: 1952–1981," paper presented at the Annual Conference of the Southern Economic Association, November, 1982, p. 25. According to Field and Noyes, this "remarkable" performance can be directly attributed the greater managerial flexibility allowed the collectives as well as the fact that the standard of living of workers in the collective sector tends to be determined by the economic performance of their enterprises. Robert Michael Field and Helen Louise Noyes, "Prospects for Chinese Industry in 1981," The China Quarterly, #85, March 1981, pp. 96–106.

[40] These interviews were conducted at the National Center for Industrial Science and Technology Management Development at Dalian and involved managers from fifteen different enterprises in a variety of industries.

[41] Andrew G. Walder, "Some Ironies of the Maoist Legacy in Industry," in Mark Seldon and Victor Lippit (eds.), The Transition to Socialism in China, (Armonk, N.Y., M.E. Sharpe Books, 1982).

[42] Andrew G. Walder, "Wage Reform and the Web of Factory Interest," presented at the Workshop on Policy Implementation in Post-Mao China, Ohio State University, 20–24 June 1983.

Other problems associated with present individual incentive schemes include: frequently low bonus awards for outstanding performance, a separation of significant enterprise-controlled benefits from performance-related incentive systems, and the persistence of the traditional Chinese predilection for equalization of attention and reward. Examples of low bonus awards can be found most typically in situations created to reward unique individual or group performance. Illustrative of this is the case of national awards for scientific discovery where the recipient institution receives modest awards and then distributes them among all workers within the institution. On the hand, the award of 7000 yuan presented to a children's clothing factory in 1980 by a municipal government to reward the factory for the the high quality of their work, and which was distributed to the factory's 735 workers, represented a one time bonus which amounted in 19% of the average monthly wage.[44] Perhaps more serious is the perception of factory workers and managers that the really important benefits which are distributed by the enterprise, particularly housing. tend to be distributed not on the basis of performance but, rather, on the basis of seniority. In fact, the inavailability and inadequacy of housing for young married workers appears to be a major source of dissatisfaction among workers and professionals.

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[43] Illustrative of the importance of bonus payments within Chinese society and the pervasive role of authorities in overseeing such phenomena is the mention made by Byrd and Tidrick, in the Chongquing Clock and Watch Company, ibid, that "because of resentment by workers in other factories, municipal authorities instructed CCWC to use bonus funds for collective welfare payments instead [of paying them directly to the workers]." p. 38.

[44] Elise C., Cocke, Frank C. Jen and Dai Dashuang, "Childrens Clothing Factory," in Hugh Thomas and William A. Fischer, The Dalian Casebook, in process The calculations assume that this bonus was distributed equally.

The issue of equalization of bonuses within Chinese enterprises continues to also frustrate the effectiveness of such schemes but there is evidence that this is gradually being addressed. Recent empirical evidence, conducted outside of China,[45] suggests a cultural bias among Chinese regarding the desirability of equalization of bonuses and rewards and an intensive investigation into a single Chinese enterprise suggested that "the pressure for egalitarianism appears to come mainly from the workers themselves. The unpopularity of sharp differentation among individuals is illustrated by the failure of a piece-rate system tested [in this factory] in 1981."[46] Despite this, the author's interviews found that Chinese enterprise managers were aware of the need for avoiding egalitarianism in bonuses and rewards if they hoped to use these to stimulate performance and also found a number of instances where employment of piece-rate systems was leading to considerable differences in worker income levels within an enterprise.

D. ORGANIZATIONAL FLEXIBILITY

One of the legacies of the Soviet influence on the Chinese economic system has been the virtual homogenity in organizational design that has characterized Chinese industrial enterprises.[47] This has served to impede their ability to respond to new situations in their environment. This problem is exacerbated by the strong vertical segmentation of the economic system, under different ministries or bureaus of the State Council, and the all-pervasive social influence of the individual's work unit.[48] The consequences of all of this is that, internally, the Chinese enterprise is virtually a captive of its past. It cannot diversify in any strong sense of the term because it is constrained not only by ministerial perogatives but also by an inability to quickly adjust its human resources to address new issues, new markets, or new technologies. Furthermore, it cannot spin-off, expand or contract to any great degree because it serves as a major source of social amenities (such as housing, medical care, child care, subsidized meals and utilities, transportation, access to cultural, entertainment and sporting events and the like) for its employees and, thus, to cut them off from the enterprise would be akin to cutting them off from primary determinants of their social welfare and standard of living, while any addition to the workforce involves a significant commitment to overhead.[49] In

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[45] Kwok Leung and Michael H. Bond, "How Chinese and Americans Reward Task-Related Contributions: A Preliminary Study," Psychologia, 1982, vol. 25, pp. 32-39.

[46] Byrd and Tidrick, Chongquing Clock and Watch Company . . ." ibid.

[47] William A. Fischer, "The Structure and Organization of Chinese Industrial R&D Activities," R&D Management, vol. 13, no. 2, April 1983, pp. 63-81.

[48] Gail Henderson and Myron Cohen, The Chinese Hospital (New Haven, CT., Yale University Press, 1984).

[49] The role of the work unit as the source of so many social amenities is a profound inhibitor of entrepreneurial change within the Chinese economy, as well. Despite the attention paid by the Western press to the increase in individually-owned businesses in China as a sign of incipient entrepreneurial change, most Chinese (including even successful individual business people) would prefer to work in a state-owned enterprise, with all of the security and perks that go along with such membership, than to establish commercial activities of their own. For this reason, as well as the government's unwillingness to allow them to play a significant industrial

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sum, at the level of the individual enterprise, the Chinese economic system is not well endowed with organizational flexibility and it does not appear that this will change to any significant degree in the foreseeable future.[50]

It is at the level of inter-organizational relationships, however, where real changes in achieving organizational flexibility appear to be occurring. A wide variety of domestic joint-ventures and collaborative relationships are being reported that suggest that it is between Chinese organizations, and not within them, that the real chance for flexibility and responsiveness appears to lie. In particular, multiorganizational collaborative arrangements appear to be the primary means by which an enterprise can quickly adjust to new challenges in its environment. Illustrative of such arrangements and the constraints that they overcome can be found, for example, in the domestic joint-venture between Tianjin municipality and a variety of partners: Tianjin's provision of a 2 million yuan, interest-free loan to the Suihua Milk Powder Plant, in Suihua City, to enable it to increase its output by 30%, in return for guaranteed deliveries of milk powder, at preferential prices, to overcome shortages in Tianjin; [51] Tianjin's 5.45 million yuan investment in three carbide factories in Shanxi in order to shift energy-consuming industries out of the city, and cooperation with enterprises in other provinces as a means of compensating for the estimated 350 university graduates that it is annually short after the national allocation process.[52] Multi-enterprise collaborations are also being arranged in an effort to pool different organizational specialties. A good example of this is the production of the Jialing brand motorcycle by a consortium of factories assembled around a core of enterprises comprised of the Chongging Jialing machine building plant, five other civilian enterprises, and three military enterprises, with more than 100 other supporting enterprises. The original motivation for this collaboration was that the Jialing factory ran out of production capacity and found willing partners who were facing order shortages in their normal markets.[53] Other examples, on a somewhat more

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role, individually-owned businesses will never represent a significant economic factor in the forseeable future in China. William A. Fischer and Julie Ann Upton, "Observations On the Reemergence Of Individual Entrepreneurship In Present-Day China," paper presented at the Conference on Chinese Entrepreneurship At Home and Abroad, 1900–1982, Cornell University, October 1982. An interesting call for some form of national welfare system to facilitate the movement of unproductive workers off of the "doles of the factory," appeared in Qian Jiaju, "A Discussion of Economic Effectiveness, ibid."

[50] The one major exception to this appears to be in the changes taking place in the enterprises Sales and Supplies Office, which are moving to more sales and less supplies than was formerly the case. Furthermore, it is in the marketing of goods and services that most innovative activities of Chinese enterprises appear to be taking place. Such changes, however, actually appear to be more procedural than they do structural.

[51] Excerpts from Heilongjiang Ribao, 30 January 1984, p. 1, as translated in China Report-Economic Affairs, JPRS–CEA-84-020, 20 March 1984, p. 41.

[52] "Tianjin's Economic and Technical Cooperation With Other Areas to Rapidly Growing Employing Such Forms as Scientific and Technical Cooperation, Joint Economic and Joint Merchandising," Jingji Guanli, no. 8, 5 August 1983, pp. 13–15, as translated in China Report-Economic Affairs, 1 March 1984, p. 65.

[53] Membership in the combination is based on competition and is subject to continuing change. Profits are shared on the basis of the proportion of the spare parts, components and assembly costs that the factories incur in the budgeted cost of a complete motorcycle. The combination is managed by a body of representatives from each of the member factories. Gin Jingji, "Unite and Carry Out Military-Civilian Integration—An Investigation Into the Economic Combinations That Produces 'Jialing Brand' Motorcycles," Jingji Guanli, no. 8, 5 August 1983, pp. 13-15, as translated in China Report-Economic Affairs, 17 October 1983, pp. 133–139.

limited organizational scale, but undoubtedly more frequently employed, involve contracts between enterprises and research units, and collaboration between factories and universities.[54]

Although intra-organizational flexibility is ultimately a more efficient means of adjusting economic resources to address emerging needs and opportunities than is inter-organizational collaboration, it appears that the Chinese system will, in the short-run at least, be constrained to making-do with the latter, with very little internal organizational flexibility being possible until greater personnel mobility becomes a reality. Despite this, however, recent Chinese progress in arranging multi-organization collaboration and achievements in rationalizing once-fragmented industries into integrated combines [55] suggests real progress has recently been made in encouraging flexible responses to emerging market needs.

IV. CHINA'S MANAGERIAL RESOURCES

Constructing an environment in which competent, professional managers can flourish is, of course, only part of the combination needed to move China's economy in the future. The other essential ingredient in this combination are the managers, themselves. With nearly 400,000 economic units operating in the economy, China has no lack of managerial "experience." It is, however, the quality of that experience and the degree of sophistication concerning modern management concepts that is of concern. Here, the reading of China's managerial resources prior to the period of recent economic reforms [i.e., the foundation upon which managerial improvement will be based] is mixed. Dwight Perkins, a noted student of Chinese economic performance, had a low opinion of Chinese managerial abilities in the nineteen-fifties, observing that:

> Th[e] combination of Marxism and lack of sophistication together generated attitudes incompatible with the efficient use of such tools as financial and market controls and even with the rational allocation of resources in general [56] [pp. 117-118].

Barry Richman, a well-known American management scholar who visited China on the eve of the Cultural Revolution, came away, on the other hand, favorably impressed by the qualifications of the managers he met, using terms such as "pragmatic, inventive, flexible, action-oriented, and interested in improving performance and results," in describing them [57] [p. 819].

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[54] In Liaoning Province 31 scientific research and design academies and institutes, six universities and specialized colleges, and 76 plants and enterprises have combined to form 17 scientific research-production units. These are all combinations of research institutes and factories, however their institutional affiliations have remained unchanged so that the original system is not disturbed and, thus, they don't run afoul of the problems mentioned in the text. Jiang Zhizheng, Xie Haibo, Kang Shuchang, Yu Zhongxin and Yang Zhaohua, "An Important Way to Create a New Situation for Scientific Research and Production—An Investigation of 17 Integrated Scientific Research and Production Bodies," Liaoning Ribao, 6 November 1982, p. 2, as translated in China Report-Economic Affairs, JPRS 82822, 8 February 1983, pp56-62. China appears to have remarkably good academic-industrial relations. William A. Fischer, "Do We Stand On Our Heads When We Work?" Research Management, vol. 26, no. 2, March-April 1983, pp. 28-33.

[55] William A. Fischer "The Reorganization of the Shanghai Television Industry In 1978: An Interpretation of Technical and Manufacturing Policy," presented at the Workshop on Policy Implementation in the Post-Mao Era," The Ohio State University, 20-24 June 1983.

[56] Dwight H. Perkins, Market Control and Planning in Communist China, (Cambridge, MA., Harvard University Press, 1966).

Despite such contradictory opinions, we know with great certainty that no matter what the quality of China's managerial corps prior to 1966, the period of the Cultural Revolution, which directly preceeded the present period of managerial reform, did nothing to improve managerial practice, and, in fact, often punished superior managerial performance, instead. It is, thus, safe to say that the present foundation of China's managerial corps is, at best, a shaky one. And, yet, it is on this foundation that the hopes of the Four Modernizations rest.

Altering the character and quality of a nation's managerial resources is not an easy task, nor one that can be accomplished in a short period of time. One of the clearest discriptions of what China is looking for in her future managers is to be found in the journal Economic Management:

> By 1985 the managers and directors of big and medium sized enterprises must have the following qualifications: they must be capable of using modern management knowledge in managing enterprises, of using such modern management methods as quality control, value projects, goal management, and network technology and of combining them with specific enterprise conditions so that the management of enterprises will approach the level of similar enterprises in advanced countries; be able to correctly implement the principle of a planned economy as central with regulation by the market mechanism as supplementary, and be able to acquaint themselves with the production, marketing, and sales situation of the products made by the same trades both at home and abroad. They must, on the basis of market prediction, be able to define the correct business policy and principles, and they must constantly produce new generations of products by resorting to new science, technology, and management. Managers and directors of big and medium-sized backbone enterprises must become entrepreneurs with the specialized enterprise management level of university or polytechnic graduates, must grasp a foreign language, and must be good in business management and technology.[58]

China's strategy in producing such an individual appears to rely on emphasizing both youth and technical qualifications in the selection of a new generation of managers for her enterprises. In 1983 China began a campaign of "readjustment" of enterprise management which involved widespread appraisals of existing management at selected enterprises and the reconstitution of those management personnel to include younger and better educated members.[59] The published results, to date, have indicated that fairly significant changes in the composition of enterprise managements must be occurring. In Tianjin, for example, the average age of plant and enterprise leaders has dropped from 50.8 to 47 years old, the percentage of enterprise managers with secondary vocational or higher levels of engineering has risen from 36.7% to 55.6%, and the proportion of management cadres with professional backgrounds has similarly increased from 13.6% to 31.6%.[60] A survey of sixty-three enterprises with representatives at the 1984 session of the National Center for Industrial Science and Technology Management Development at Dalian, conducted by the author, found that 49 of them (77.8%) were led by managers with a technical education. Furthermore, there was no significant difference between state-led and provincially/municipally-led enterprises in this regard. All in all, if these statistics reflect recent changes in all of China's "backbone" enterprises, then progress truly has been made towards the ultimate goal in increasing the professional character of China's managerial corps. The extent to which similar changes have been paralleled in China's more numerous smaller factories is difficult to ascertain. It would appear, however, that it will take a long time before significant improvement in the quality of management training among the great mass of smaller Chinese enterprises can be realized.[61]

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[57] Barry M. Richman, Industrial Society in Communist China, (New York, Vintage Books, 1969)

[58] Ji Zhong, "How To Do A Good Job in Overall Consolidation of Enterprises by Applying the Spirit of Restructuring," Jingji Guanli, no. 6, 5 June 1983, pp. 35-38, as translated in China Report-Economic Affairs, JPRS 84156, 19 August 1983, pp. 5-11.

Despite the fact that they have sung the praises of technically-trained personnel as enterprise managers in the past,[62] the Chinese are today admitting that such a policy is not without problems, particularly if such technical training is bereft of economic and behavioral sensitivities.[63] Consequently, they are, in a number of ways, seeking to not only select technically educated individuals for managerial positions but, also, to ensure that such managers are conversant in the economic and social aspects of their responsibilities, as well. One of the ways this is being done is through the administration of a national examination given to 20,000 managers in state-owned enterprises between August 1984 and January

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[59] According to an article in the Sichuan Daily, the readjustment of the management group in an enterprise involves ascertaining that they "not only meet political, group size, age and educational-level requirements, [but that] they must also have complete expertise." "Grasping the Key Link of Reorganizing Enterprise Leadership Groups," Sichuan Ribao, 8 May 1983, p. 1, as translated in China Report-Economic Affairs, JPRS 84244, 1 September 1983, p. 2.

[60] That similar, rather remarkable changes in the composition of management teams have occurred at levels above that of the enterprise in Tianjin's economic hierarchy can be seen in the accompanying data: at the bureau level, the average age of members of the leading bodies declined from 58.1 to 53.8. The level of managers with a secondary vocational school level of education or higher has increased from 43.9% to 65.2%, and the proportion of bureau managers with professional technical backgrounds has increased from 17.6% to 33.8%. At the level of company leaders, the average age declined from 54.2 to 49.6, the proportion with at least secondary vocational training rose from 31.1% to 54%, and the proportion with professional technical backgrounds rose from 26% from 14%. China Report-Economic Affairs, 17 February 1984, p. 62.

[61] Yang Gongpo, "On Improving the Quality of China's Small-Sized Industrial Enterprises," Caijing Yanjiu, No. 6, 25 December 1983, pp. 32-36, as translated in China Report—Economic Affairs, JPRS-CEA-84-053, 29 June 1984, pp. 60-69.

[62] "Shanghai No. 18 Wireless Factory Strengthens Its Technical System of Command: Scientists and Technicians to Leadership Positions Means Big Changes in Production," Guangming Ribao, June 27, 1980.

[63] In his talk to the managers attending the 1984 session of the National Center for Industrial Science and Technology Management Development at Dalian (July 1984) Yuan Bao Hua noted this very point. On the one hand, he said, such training is an advantage because of the rigor of its underlying logic, while on the other hand it can be a disadvantage because economic and social issues are typically not well developed in such education.

1985.[64] The examination, which was written by the State Committee for the Examination of Economic and Managerial Personnel, covered China's economic policies as well as detailed technical principles of enterprise management.[65] This came on the heels of experimental examinations which the State Economic Commission held in December of 1983 with a sample of 520 factory managers in Beijing, Shanghai, and eight other cities. The results of that experimental examination, according to Ahang Yanning, a vice-minister of the SEC, revealed that "the examinees proved to have a good command of China's economic policies, but their results were unsatisfactory for enterprise financial operations and modern managerial skills."[66] Despite this observation, managers interviewed during the summer of 1984 professed not to be anxious about the coming examination because of the existence of a review outline to study from, as well as the fact that they will receive 3 months time off from work to review for this examination.

Experimentation with modern management techniques and emulation of successes derived from such experimentation represents another way in which good management approaches are to be diffused through China. In 1984, the State Economic Commission selected twenty factories throughout the nation as test points for trying modern management methods introduced from abroad. Among the techniques mentioned as being involved in the experiments are: total planning management, total quality control (TQC), total economic accounting, network techniques, optimization techniques, systems engineering, value engineering, market forecasting, decision making methods, the ABC approach to inventory control, linear programming, and the Toyota mode of production [i.e., the kanban or just-in-time approach].[67] What is particularly interesting about these techniques is that, with the exception of market forecasting, they are all primarily manufacturing management techniques. Paradoxically, however, it is in the manufacturing management area where China appears to have its stongest suite of management professionals, already.

Beyond the issue of providing China's managers with an exposure to modern management techniques is the question of whether, once they have absorbed such material, will they be able to use it in a manner that will lead to an improvement of economic performance? Recent research into how Chinese managers perceive their roles suggest that they do not now see themselves as leaders and decision-makers as much as they see themselves as conduits for information, presumably from above.[68] Is this an artifact of 35-plus years of central leadership, and will it change in the wake of the far-reaching economic reforms taking place, or is it part of the Chinese managerial psyche that will frustrate increased entrepreneurial initiatives? [69] Also, yet to be answered is the question of what impact will the newly-rediscovered penchant for advancement by examinations and certification will have on the motivation, morale and performance among China's wealth of experienced, but undereducated, veteran managers? [70] How capable are China's veteran managers of absorbing modern managerial approaches, and how willing are they to step aside so that younger managers can take their place? Can the Chinese economic system truly work without the established patterns of inter-organizational guanxi, in the absence of dependable transportation and communication systems, and will the emphasis on advancement via certification imperil this system?

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[64] Xinhua. 16 February 1984, as reported in China Report-Economic Affairs. JPRS-CEA-84-018, 6 March 1984, p. 40.

[65] A detailed outline of the management policy and production management portions of the examination are found in Gongren Ribao, 14 November 1983, p. 2, as translated in China Report-Economic Affairs, JPRS-CEA-84-009, 6 February 1984, pp. 28–33.

[66] Xinhua, 16 February 1984, ibid.

[67] A visit to one of the factories selected among the twenty experimental factories (the Dalian Freezer factory), in the summer of 1984, indicated that an important part of the selection process was likely the fact that these factories are already being well-managed. This particular factory was actively involved in marketing and servicing its product across China, was producing a high quality product, was doing market forecasting, using the ABC approach to control its working-capital usage, and was using some form of discounted cash-flow analysis in making investment decisions. The shop-floors in the workshops were clean and laid-out in a remarkably orderly fashion and work was being performed using daily-updated dispatch lists and lot size quantities.

V. SUMMARY

This paper has argued that in every dimension examined: the decentralization of managerial autonomy, managerial accountability, incentives for economic performance, organizational flexibility, and the development of managerial resources, there has been recent and dramatic positive change in the Chinese economic system. All of this is taken as being indicative of the present Chinese leadership's committment to truly reconstruct the economy and is likely to lead to the improved performance of the economic units within that economy as a result. As was mentioned earlier, the evidence of this improvement is already quite visible in the streets and markets of China, today. The larger question that remains, however, is can the continuation of such change and improvement be sustained? Here, the conclusion is still not entirely clear. In nearly every dimension examined, the changes that have taken place have been only partial in nature. For the continued alteration of the economy to occur there will need to be continued changes in the managerial system. Each of these changes: increased breadth and scope of managerial autonomy, stricter economic accountability for managerial performance, increased discretionary control over incentives and the ability to tie incentives to work performance, and increased freedom to design and diversify organizations to meet market needs, will reduce further the influence of the central planners over the workings of the economic system and will challenge many of the foundations of accepted authority. At this point in time, the rapidity with which the changes discussed in this paper have occurred has been almost startling. But, to be fair, it has been the easier changes that have been enacted. To maintain the momentum of change in the future, the alterations that need to be made will become increasingly harder to effect.

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[68] This is based on unpublished research by Joseph Alutto, conducted at the National Center at Dalian in 1984, which employed the Mintzberg taxonomy of managerial tasks and compared the responses of Chinese managers with their Western counterparts.

[69] Some insights in this regard might be found in Robert Silin's research among managers of large scale enterprises in Taiwan. "In the literature on Western organizations, especially enterprises, there is a belief in the dichotomy between policy formulation and execution. Top level administrators create policy while middle level personnel execute it. In Taiwan the primary leader creates policy which constitutes the translation of his thoughts into proper behavior. All actions are understood in a general manner to express the individual's understanding of policy." Robert H. Silin, Leadership and Values: The Organization of Large-Scale Taiwanese Enterprises, (Cambridge, MA., Harvard University Press, 1976), pp. 59-60. In many ways, the characteristics of Taiwanese organizations that Silin describes are closely related to experiences with Chinese enterprises. This would suggest that Chinese managerial behavior will evolve largely as a result of cultural as well as economic influences and that the end result will actually resemble the system of "Chinese" management that high-level Chinese officials are fond of talking about. Silin does note, however, that among Taiwanese managers, "the ideal of independent entrepreneurship, though diminishing, continues to exert considerable influence. (ibid, p. 78].

[70] Susan Shirk has approached this issue when she spoke of the likelihood of increasing tension between veteran workers and new workers as wages and promotions begin to be determined more by examination than by experience: Susan L. Shirk, "Recent Chinese Labour Policies and the Transformation of Industrial Organization in China," The China Quarterly, #88, December 1981, pp. 575-593.

OWNERSHIP AND CONTROL IN CHINESE INDUSTRY: THE MAOIST LEGACY AND PROSPECTS FOR THE 1980'S

By Christine P.W. Wong*

CONTENTS

	Page
I. Introduction	571
The Industrial Province Policy	574
The Material Allocation System	576
II. The Central and Local Spheres of Influence	579
A Taxonomy of Enterprises	581
Size	581
Ownership: Collective Enterprises	582
State-owned Enterprises	585
Conclusion	588
III. Implications of Self-reliant Local Industrialization	590
IV. Prospects for the 1980s	593
Figure A	599
Figure B	600
Tables	601

I. INTRODUCTION

Many studies have noted the decentralized, regional character of the Chinese planning system, under which a number of important resource allocation and coordination functions are performed by local authorities.[1] Until recently, however, the nature of this system was not well understood, since much of the decentralization took place during the informational black-out period of the 1960s and 1970s. Post-Mao publications from China and some recent studies in the West have provided useful details about the evolution of the system and its basic mechanisms.[2] The emerging picture re-

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Research for this paper began during 1982 on a grant from the Committee for Scholarly Communications with the People's Republic of China. Visits to a number of local industrial enterprises were arranged by the Institute of Economics, Chinese Academy of Social Sciences. To the many helpful persons at the Academy and in Guangdong and Hebei Provinces I owe a debt of gratitude. Special thanks are also due to Bill Byrd, Liz Perry and Terry Sicular for their patient reading and critique of an earlier draft. Maruyama Nobuo, Nick Lardy, Dwight Perkins and Tom Rawski also provided helpful comments. All interpretation and remaining errors are of course solely my responsibility.

[1] See, for example, Audrey Donnithorne, *China's Economic System* (London: George Allen and Unwin, 1967); Alexander Eckstein, *China's Economic Revolution* (Cambridge: Cambridge University Press, 1977); Dwight Perkins, *Market Control and Planning in Communist China* (Cambridge: Harvard University Press, 1966); and Benjamin Ward, "The Chinese Approach to Economic Development", in Robert Dernberger, ed., *China's Development Experience in Comparative Perspective* (Cambridge: Harvard University Press, 1981).

[2] See, for examples, Liu Guoguang, ed., *Guomin Jingji Guanli Tizhi Gaige de Ruogan Lilun Wenti* (Some Theoretical Issues in the Reform of the National Economic System) (Beijing, 1981); Ma Hong and Sun Shangqing, eds., *Zhongguo Jingji Jiegou Wenti Yanjiu* (Research on the

Continued

veals a system that had become progressively decentralized through the Cultural Revolution (CR) period, with local authorities gaining control over major portions of financial and material resources—a trend that accelerated in the Post-Mao period. Still, many ambiguities remain about the precise division of authority and responsibility among the different levels of government: How much of total industrial output does the central plan include? How is the local sector managed? To what extent does the state control or influence resource allocation in the local sector? These questions are central to understanding current reforms as well as to appraising the prospects for China's industrial performance in the 1980s.

In *Socialist Planning*, Michael Ellman identifies three basic types of planned economies: centralized, decentralized, and indirectly centralized. In the first type, all decisions are made by central planners. In the second, all decisions are made by individuals, enterprises or local governments, independently of central planners. In the third type, decisions are made by individuals, enterprises or local governments, but are the same as those central planners would have made. In this framework, the Soviet Union is an archetypical centralized economy; Yugoslavia and Hungary are decentralized economies; and according to Ellman, Maoist China was of the third type.[3] Certainly Maoist ideals bore a close resemblance to the model of indirect centralization: administrative simplification was to be effected through devolution of decision-making authority to local governments, and local decisions could be made to conform to national goals if local officials were properly imbued with an appreciation of "the whole country as a chessboard." How closely did Chinese reality approximate this Maoist ideal? What were the mechanisms for achieving central objectives after the transfer of resources to local control? What were the incentives for inducing local compliance?

This paper attempts to provide some answers by examining the structure of enterprises in Chinese industry and the extent of decentralized control. Throughout this paper, the word "decentralization" will be used to denote the devolution of control to lower levels. As will be shown below, virtually all of the decentralization that took place through 1978 has been of an administrative nature, transfering decisionmaking authority to lower level governmental agencies rather than to production enterprises. At present, the industrial structure is extremely complex. Control is fragmented among local governments and central ministries, with each claiming exclusive ownership and control of some enterprises, but sharing crisscrossing lines of command in a great many other enterprises.

The origins of this confusing structure can be traced to the repeated decentralization of the Chinese economy during Maoist peri-

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Issues of China's Economic Structure) (Beijing, 1981); William Byrd, "Enterprise-level Reforms in Chinese State-owned Industry," *American Economic Review*, May 1983; Barry Naughton, "False Starts and Second Wind: Financial Reform in Chinese Industry", in Elizabeth J. Perry and Christine Wong, eds., *The Political Economy of Reform in Post-Mao China* (Cambridge: Harvard University Press, 1985); and Christine Wong, "Material Allocation and Decentralization: Impact of the Local Sector on Industrial Reform", *op. cit.*

[3] Michael Ellman, *Socialist Planning* (Cambridge: Cambridge University Press, 1979), chapter 2.

ods, and especially the Cultural Revolution policy of building a "relatively complete and independent industrial system" in each province. During the CR, to enable provinces and sub-provincial units to build industries "on the basis of self-reliance", the central government transferred many resources to local control. In addition, a variety of incentives that were offered gave localities significant autonomy in using resources generated by local industrialization. This policy of self-reliant development was enormously successful in fostering rapid growth in local industries through the CR period. In the process, however, it also altered the Chinese economic system in a fundamental and perhaps permanent way, creating a large local sector that operated under quasi-market conditions, and over which state control was rapidly diminishing.

This paper will argue that the "industrial province" policy was in some ways as harmful to performance in industry as the provincial grain self-sufficiency policy in agriculture. The provincial self-reliance policy in industry led to the fragmentation of control over resources. With central ministries and the various administrative levels of province, municipality, prefecture and county each controlling a portion of the resources needed for production, industrial enterprises increasingly came under supervision by multiple "bosses". The Qingdao Forging Machinery Plant provides an illustrative if extreme example.[4] Under "dual leadership" by Qingdao Municipality and Jiaoxian County, in the pre-reform period, the plant received its production assignments from both the municipal machine-building bureau and the county, with the former setting targets for total output and the product mix, and the latter setting the target for output value. Its inputs were supplied by the Ministry of Machine-building (a national unit), the Shandong Machine-building Bureau, the Qingdao Machine-building Bureau, and the county, each of which had some say over production. The plant's management cadres were assigned by the county, but the general staff of workers was allocated by the municipal labor bureau. With different organizations being responsible for different aspects of enterprise operation, problems of coordination among them had frequently created problems for the enterprise. Many of these practices have continued into the reform period. For example, as a result of the conflicting targets assigned by the various superiors, in 1982 the plant earned praise from the provincial and municipal machine-building bureaus for improvements made in its performance, while being criticized by the county for failing to meet its output-value target.[5]

Market reforms introduced since 1979 have by and large not achieved their intended objective of improving efficiency in the industrial sector because they have failed to cut through the tangled web of local and ministerial interests in enterprise operations. In the Qingdao plant discussed above, the municipal machine-building bureau's proposals for change have been blocked by the county. In addition, the active intervention of local authorities in manipulating the reform environment has in some respects distorted the intended incentives of reform, accentuating differences among enterprises and distributing benefits and costs of reform unequally among them.

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[4] William Byrd, Gene Tidrick, Chen Jiyuan et al., *Recent Chinese Economic Reforms: Studies of Two Industrial Enterprises*, World Bank Staff Working Papers, No. 652, 1984.

[5] *Ibid.*, pp.76–77.

THE INDUSTRIAL PROVINCE POLICY

The "industrial province" policy had its origins in the Maoist preference for administrative simplification, through decentralization of decisionmaking to local governments. Local officials acting as faithful intermediaries could improve implementation of central policies while reducing the amount of vertical information flows required, lessening the burden on the planning system. At the same time, decentralized decisionmaking could enhance performance by allowing local officials to make adaptations necessary to suit the specific conditions of China's many and varied regions. The policy was also closely linked to the defense strategy of building economically self-sufficient regions in preparation for a potential Soviet invasion.[6]

During the CR, provinces were called upon to build "relatively complete and independent" industrial systems based on local resources. Among the provisions of the policy, three were especially instrumental in transferring decision-making authority to localities. The first was the decision to leave more resources in local hands, under the slogan of "not draining the pond to catch the fish". Even in 1963-65, the central government had begun to transfer portions of centrally allocated materials for discretionary local use.[7] To provide better incentives for local industrialization, from 1966 on, localities were allowed to retain almost all output from local enterprises, under the slogan of *Shuijian, shuiguan, shuiyong* (whoever builds and manages the enterprise has the use of its output).[8] Concurrently, local governments acquired substantial financial resources for investment when they were allowed to retain depreciation funds of local enterprises beginning in 1967.[9] In addition to existing local revenues, in 1972, provinces began to receive an allowance of two yuan/capita for local extrabudgetary funds, which came to significant amounts in the more populous provinces.[10] They were also allowed to retain a portion of profits remitted by local enterprises built after 1972.[11] Together, these steps turned over substantial and growing amounts of resources to local control.

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[6] For a discussion of the importance of construction of "the third front" in determining industrial location during the CR, see chapters 1 and 22 in Ma Hong and Sun Shangqing, op. cit., by Zhou Shulian and Chen Jiyuan.

[7] Li Jingwen, "Issues Concerning the Nature and Management of the Circulation of Producers' Goods", in Liu Guoguang (1981), p. 203.

[8] Liu Guoguang and Wang Ruisun, *Zhongguo de Jingji Tizhi Gaige* (Reform of China's Economic System), (Beijing, 1982), p. 7.

[9] *Ibid.* Strictly speaking, these depreciation funds were to be used only for the replacement of worn-out equipment within the enterprises retaining the funds. In practice, these funds were often pooled by the localities or ministries and used for investment in new productive capacity.

[10] Xing Hua, "The Frequent Changes of the Fiscal System during the Ten Years of Chaos, Part 2", *Caizheng* (Finance) (CZ), 1983:9, p. 8. These funds were intended to help cover local expenditures on welfare provisions and infrastructure, such as health, education, road-building, and housing construction. During the CR period, such funds were also often diverted to investment use.

[11] This is reported by Vivienne Shue, "Beyond the Budget: Financial Organization and Reform in a Chinese County", *Modern China*, v. 10, n. 2, April 1984, p. 161.

The second provision was the program to help localities set up enterprises in key industries, such as machine-building and chemical fertilizers. Under this policy, the central government provided "seed money", technical expertise and key items of equipment in a pump-priming effort to launch the local industrialization drive, particularly in the "five small industries".[12] Along with the decentralization of most central enterprises to local supervision in 1970, localities came to administer the bulk of industrial enterprises.

Finally, to encourage the spirit of self-reliance, and in the context of a weak planning system that was increasingly incapable of supplying local needs in a timely fashion,[13] the growth of local industry eventually forced the state to grant grudging permission to interregional trade among local governments outside of plan channels. Even with numerous restrictions, including the prohibition of direct trade between enterprises, State Planning Commission approval for trade in selected key materials, etc., this trade grew quickly and began to take on market characteristics.[14] To circumvent regulations limiting price flexibility, and to avoid suspicions of speculation and profiteering, localities often took refuge in barter trade. Typical examples include using machine tools as "hard currency" in "cooperation arrangements" to exchange for steel, coal, etc.[15] The State Statistical Bureau estimates that over 70% of the metal-cutting lathes produced during 1973–1976 were traded in extra-plan channels, with only 200,000 of the 600,000 produced in fulfillment of state contracts.[16] While this figure was probably higher than the average for Chinese industry, it is clear that this trade grew and became increasingly important for meeting local, especially subprovincial, needs through the 1970s.[17] By 1978, portions of key materials under local allocation included 46% of coal, 64% of cement, and 65% of machine tools.[18] Furthermore, even when this trade was denominated in state prices, the bilateral exchange of hard-to-obtain materials clearly took on values in excess of state prices.

The primary impact of the "industrial province" policy was to transfer resources and initiative to local governments. Through the CR, the locus of industrialization shifted progressively to the local sector. By 1977–1978, some 40% of total investment in fixed assets was financed from local resources.[19] Even in the strategic iron and steel industry, local investment accounted for 52% of the total during the Fourth Five Year Plan (1971-1975), compared with only 8% during the First Five Year Plan.[20] In the process of taking on more and more planning and coordinating functions, local governments emerged from the CR as powerful forces in managing the Chinese economy.[21]

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[12] For a history of local industrialization during the CR, see Christine Wong, "Rural Industrialization in the People's Republic of China: Lessons from the Cultural Revolution Decade", in U.S. Congress, Joint Economic Committee, *China Under the Four Modernizations*, Part I, (Washington D.C.: USGPO, 1982); and Christine Wong, *Rural Industrialization in the People's Republic of China: Development of the "Five Small Industries"*, Ph.D. Dissertation, University of California, Berkeley, 1979.

[13] For problems of growing shortages during the CR period, see Zhou Shulian.

[14] In 1977, for example, cooperation agreements for the trade of 23 materials required SPC approval. See *Xiandai Zhongguo Jingji Shidian* (Contemporary Handbook of Chinese Economic Affairs), (hereafter Shidian), (Beijing: 1982), p. 317.

[15] Wang Gengjin and Zhu Rongji, "Whither Commune and Brigade Industry?" in *Jingii Guanli* (Economic Management) (JJGL), 1979: 3, p. 21.

[16] *Wuzi Tongji Xue* (Study of Accounting for Material Resources), (Beijing, 1982), p. 222.

[17] According to one economist, "Along with an increase in the distribution of resources by localities has come a more lively movement of goods; a cooperation in goods had developed among regions, and a gradual increase has taken place in the mutual supply of each other's needs. This sort of cooperation in the mutual exchange of goods under local control has become a rather active method (for the exchange of goods among regions." Zhang Shushan, "Some Views about Reforms in Commodity Controls", JJGL 1979:8, pp. 15–18; translated in Joint Publications Research Service (JPRS), *Economic Affairs* (E.A.) no. 34, p. 16.

[18] Yu Xiaogu, "Implement the Merger of Planned and Market Adjustment to Liven up Material Circulation", JJGL 1980:2, p.4.

The policy of self-reliance also greatly exacerbated the "cellular" character of the Chinese economy. Thrown into an environment where local development depended primarily on local materials and accumulation, not surprisingly, local governments began to behave like entrepreneurs trying to maximize local interests. The availability of an extra-plan channel where local surpluses could be exchanged for other needed materials alleviated the worst inefficiences of enforced regional self-sufficiency. At the same time, however, it raised the real value of all materials under local control, strengthening resistance to transfers of resources stipulated by the state plan and contributing to the encystment of local economies.

Finally, the industrial province policy made the dualistic character of the Chinese economy more pronounced by creating a new class of state-owned enterprises sharply differentiated from other state-owned enterprises in their relationship to the state plan and budget. These quasi-state units operated on the fringe of the planned sector; their inputs came primarily from local allocations, their outputs went into the pool of local materials, and their profits and losses often went into local extrabudgetary funds for local disposal. In effect, the local sector constituted a large and growing quasi-market sector that was quite responsive to economic signals of supply and demand, though subject to considerable administrative restraint. As will be shown below, the existence of this sector has both facilitated the introduction of market reforms in the post-Mao period and posed serious problems to achieving their intended objectives.

THE MATERIAL ALLOCATION SYSTEM

Before examing the structure of enterprises in Chinese industry, a brief discussion of the material supply system is needed to explain the evolution of overlapping command over enterprises that developed during the CR period. In the 1950s, China adopted the Soviet material allocation system, along with other components of the Soviet planning apparatus. Under this system, production materials are divided into three categories. Category I comprises the most important materials under direct allocation by the State Planning Commission, including coal, steel, nonferrous metals, lumber and cement, etc. In category II are important and specialized materials under allocation by central ministries. For example, textile machinery is allocated by the Ministry of Textile Industry, and ferro-alloys and coking coal are allocated by the Metallurgical

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[19] See Byrd and Naughton.

[20] Sun Shangqing and Chen Shengchang, *Zhongguo de Chanye Jiegou* (The Structure of Chinese Industry) (Beijing, 1982), p. 56.

[21] For a more detailed discussion of the growing influence of local governments, see Christine Wong (1985).

Ministry.[22] In category III are materials placed under local allocation: in 1965 there were 5929 materials in this category. In 1978, Shanghai Municipality reportedly allocated 7560 category III materials.[23]

The Chinese material allocation system is much less extensive than the Soviet one in terms of both coverage and content. The number of materials placed under centralized allocation in categories I and II has never exceeded 500–600 until recently (see Table 7), compared with as many as 65,000 in the Soviet Union.[24] Aside from the less extensive coverage of state allocations, one factor accounting for the much smaller number of materials balanced centrally is that the content of each "material" or product group is broader and more aggregative, again reflecting the more limited planning capability in China. For example, "steel" and "cement" have historically been balanced by bulk weight, without specifications for type, shape or quality.[25] Disaggregation of commodity targets into specific products and delivery contracts was left to the face-to-face meetings between producers and users at materials ordering conferences, an innovation that first appeared in the early 1960s.[26] (A new system of classification may have been recently introduced for materials under allocation—at present, there appear to be in Chinese writings two quite different sets of numbers for materials in categories I and II. In some, the combined number of materials in I and II is said to have been reduced from around 200 to 64 and 67 in 1980 and 1981, respectively, as part of the post-Mao decentralization of material allocations.[27] However, other writings report that in 1981, there were 256 materials in category I and 581 in category II, both significant increases over earlier numbers.[28] This discrepancy seems likely to be due to a new system introduced in recent years that divides materials into finer categories, rather than indicating adjustments toward significantly greater central control over material allocation.)

Aside from the materials ordering conferences, another unique feature of the Chinese material allocation system is its two-tiered structure: in addition to the three-fold division of materials according to their importance in production, category I and II materials are divided into portions under central and local allocation. This feature evolved partly as a natural adaptation to the difficulty of implementing material balancing in a relatively backward economy with poor communication and transportation facilities. Later, with the growth of local, small-scale enterprises, the impossibility of coordinating supplies for the huge number of enterprises required a shift toward a regional allocation system.

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[22] *Ibid.*

[23] Zhang Shushan, p. 16.

[24] This figure includes 2000 commodity balances compiled by Gosplan USSR, "close to" 15,000 compiled by Gossnab USSR, and "close to" 50,000 by ministries. From *Ekonomika i organizatsiia promyshlennogo proizvodstva* (Economics and Organization of Industrial Production), 1983:8, p. 26. This reference was given to me by Gregory Grossman.

[25] Li Jingwen, p. 257.

[26] For a description of the materials ordering conferences, see Eckstein, pp. 105–106.

[27] Sun Xuewen, "During the Readjustment Period Reform Must Still Be Implemented", JJGL 1981:2, p. 7; and interview in Beijing, May 1982.

[28] *Shidian*, p. 312; and Li Jingwen, *Ibid*.

During the First Five Year Plan period (FFYP), the main obstacles to material balance planning included the large number of small-scale enterprises, the wide range of techniques in use simultaneously in Chinese industry, the coexistence of various forms of enterprise ownership, the poor statistical collection system, and the shortage of planning skills and experience. Under those conditions, production planning and state allocations concentrated on only the state-owned enterprises and the larger joint enterprises under private and state ownership, and substantial resources were left to be allocated by the market. Through the FFYP, central planning was gradually extended to include almost all enterprises in state allocation plans, and many more enterprises were brought under direct central ownership. A peak was reached in 1957, with 532 category I and II materials, and state allocations accounting for 70–90% of the totals available.[29]

However, the limited extent and high degree of aggregation of the material allocation system made it a crude and ineffective tool for coordinating production on such a large scale. As problems arose, rather than channeling resources to strengthen the planning apparatus, Maoist policy chose to divide up material allocations on a regional basis, as part of the "dual track" planning system.[30] In effect, the system of material supplies was transformed from one where enterprises were divided into two categories, with key enterprises entitled to plan allocations at state prices, and others supplied by market channels at market prices; to a two-tiered system where enterprises became subject to either central or local allocations. Needless to say, this system greatly strengthened local planning and control over small-scale, non-key enterprises.

The most radical form of this was introduced during the Great Leap Foward in 1958, when the number of materials in categories I and II was reduced by 75%, and the remainder were turned over to provincial allocation. At the same time, ownership of 87% of the existing central enterprises was decentralized to the provinces, which became responsible for planning their production and supplies. Under this system, the central government limited its responsibility primarily to setting targets for inter-provincial transfers of key materials, leaving local governments to manage detailed balances. After the collapse of the Leap, this radical form was abandoned in favor of a middle course. Aside from a brief attempt during 1961–1963 to restore material allocation to the national level, the dualistic character has been retained in the Chinese material planning system, with central and local governments sharing responsibility over allocation of key materials in categories I and II.

While material balancing on a regional basis simplified the planning task to be performed by any one organization, it introduced new problems of coordination among the planning units. Under this two-tiered system, the division of responsibility and control has tended to revolve around enterprise ownership, with central enterprises applying to central ministries or materials bureaus for supplies, local enterprises applying to local departments, etc. Some of the problems of crisscrossing lines of command in the industrial sector are due to the fact that this division of labor could not be applied absolutely, especially with respect to enterprises that had been decentralized to local control in 1970. Since many of these enterprises require inputs that were still only allocated by central ministries or bureaus (for example, imported steel types), they continued to come under varying degrees of supervision by the ministries. In 1975, over half of these enterprises were reportedly managed by central ministries "on behalf of" local governments. In these cases, assignment of production and investment plans continued to come from the ministries, along with material suplies. In return, the bulk of output from these "local" enterprises continued to be allocated by central ministries.[31] Other enterprises for which control is not strictly defined by ownership are the "keypoint" local enterprises. These are enterprises that have either developed beyond local capabilities to provide inputs and markets, and now require central government participation in their operations, or they were enterprises set up partially with centrally allocated "pump-priming" resources, and for which the central government retains partial ownership rights over allocation of their output[32]

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[29] Li Kaixin, "Management of China's Materials and Resources", *1981 Zhongguo Jingji Nianjian* (1981 Almanac of China's Economy), (Beijing, 1982), p. IV–124.

[30] For a discussion of China's "dual track" planning, see Eckstein, chapter 4.

II. CENTRAL AND LOCAL SPHERES OF INFLUENCE[33]

The separation of enterprises into vertical systems under industrial ministries, with weak horizontal links across ministerial systems is a hallmark of Soviet-type economies. In China, this structure is complicated by the addition of horizontal cleavages that are demarcated by administrative levels: central, provincial, prefectural and county. The interaction of the Soviet structure with the regional character of the Chinese system produces what the Chinese refer to as the problem of *tiao tiao kuai kuai,* the fragmentation of the economy into pieces controlled separately by vertical and horizontal lines of command.

The fragmentation of control and overlapping command are perhaps best illustrated at the county level: in Hebei's Shulu County, the 48 county-level enterprises were in 1982 divided into six groups—one was a state-owned enterprise that belonged to the prefecture, 12 were county-run, in-budget state-owned enterprises, 18 were collective enterprises in the Second Light Industry Bureau, one was a collective enterprise belonging to the Grain Bureau, five others belonged to various non-industrial bureaus, and eleven were "county-run collective" enterprises.[34] Within these groups, there were further subdivisions along functional lines: the axle plant received supplies and guidance from the provincial and prefectural farm machinery companies, and the chemical and fertilizer plants were affiliated with the provincial Chemical Industry Bureau. These complicated groupings correspond to equally complicated, and different, constraints and incentives that govern the behavior of the enterprises, a fact that is currently manifested in the multitiered structure of prices that has emerged in the post-Mao period.

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[31] Liu and Wang, pp. 8–9.

[32] See Christine Wong, "Rural Industrialization in the People's Republic of China: a Locational Analysis of Chemical Fertilzer Production", in Lee Ngok and Leung Chi-keung, eds., *China: Development and Challenge,* Proceedings of the Fifth Leverhulme Conference, (Hong Kong: University of Hong Kong Press, 1979).

[33] The description in this section refers to the structure that existed during the Cultural Revolution period, even though some of the data cited will be from the post-Mao period.

[34] While this information was obtained for 1982, the groupings were identical to those existing throughout the 1970s. Similar structures are found in other counties. Fieldwork, 1982.

The existence of multiple prices for many products became widely reported with the advent of market reforms that further liberalized trade outside of state channels and allowed some prices to float. In the coal-mining industry, at least two prices that are unrelated to quality exist for state procurement: the basic state price of 20–30 yuan per ton for planned procurement, and a "premium price" of 30–40 yuan for above-quota procurement.[35] Provinces reportedly offer similar bonuses and a variety of subsidies for their purchases.[36] Outside of state channels, in 1982 mines could get prices of 50–80 yuan per ton "by negotiating freely".[37]

Unlike the agricultural sector, where state procurement quotas are applied more or less to all production units, with variations based on their productive capacity and internal consumption requirements, state procurement at plan prices applies to only a portion of enterprises in industry. The key factor determining which prices a mine or enterprise is able to charge is clearly its relationship to the central state plan, a fact that is reflected in the general complaint about an "abnormal" situation where "whatever is under state control is sold at unified state allocation prices, which are fairly low, and whatever is not state controlled is of inferior quality but is sold at high prices."[38] This is corroborated by examples indicating that prices differ by size and ownership of the production enterprises. With the great post-Mao housing boom generating unprecedented demand for construction materials, shortages have sent market prices skyrocketing in those industries. With some enterprises still constrained to sell at state prices, multiple prices have emerged, with large gaps among them. For example, in Hebei Province, while the province-run, large-scale Yaohua Plate Glass Factory in 1982 sold its output at 11.50 yuan/case, prefectural and county-run plants were selling at 25 yuan/case, and commune and brigade-run factories were selling at around 40 yuan/case.[39]

But state control is not a straight-forward matter of size and ownership or even adminstrative level. In a visit to a rural county in Guangdong Province in 1982, I learned that the county-run, small-scale cement plant sold its output at two prices: 80% at an ex factory price of 96 yuan per ton, and 20% at 140 yuan per ton (both were much higher than the state allocation price of 40-50 yuan/ton). A small-scale phosphorus fertilizer plant run by the same county had been allowed recently to set up a cement workshop to help cover its losses in fertilizer production, and it was able to sell all of its cement at 140 yuan/ton.[40] To decipher the links among size, ownership and control (by plan), it is useful to construct a taxonomy of industrial enterprises according to control over material and financial resources generated.

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[35] Yang Xuguang, Xu Changzhong and Zhang Guangyi, "Adopt Economic Measures, Reform Coal Supply", in *Zhongguo Caimao Bao* (Bulletin of Chinese Finance and Trade), Oct. 16, 1982; translated in E.A. 295, pp. 28–30.

[36] Hunan Provincial Service, Feb. 19, 1983. in E.A. 322, p. 39

[37] See note 35.

[38] Li Jingwen, "Attention Should Be Paid to Circulation", *Shijie Jingji Daobao* (Bulletin of World Economy), Sept. 27, 1982, p. 4; translated in E.A. 300, p. 23.

[39] *Jiege Lilun yu Shijian* (Price Theory and Practice) (JGLL), 1983: 4, p. 28.

A TAXONOMY OF ENTERPRISES

The *Chinese Statistical Yearbook* lists breakdowns of industrial enterprises by size, ownership, sector and output. Other sources reveal a bewildering plethora of distinctions among enterprises based on their relationship to the state budget and plan. An attempt to correlate these different categories with a "plan" and "market" division is presented in Figure A, with "plan" and "market" designating the origin of demand for the enterprise's output. There is obviously a high degree of correlation among some of the categories. An enterprise under unified plan allocation is usually a large-scale, state-run plant included in both the budget and the plan. However, all enterprises within the plan are not necessarily within the budget, and vice versa. An example is a light bulb factory whose output is allocated by plan but whose profits are remitted to the local light industrial system, bypassing the budget.[41] To complicate things further, an enterprise can operate partly within the plan and partly outside it, if it supplements its plan assignment with production based on buyer-provided materials. The Number One Truck Manufacturing Plant in Changchun reportedly has agreements with over 90 localities and organizations to produce trucks on this basis.[42] The fact (in Figure A) that a line cannot be neatly drawn through these categories to divide enterprises into two discrete camps of "plan" and "market" is symptomatic of the overlapping command that characterizes Chinese industry.

Size

Beginning with a brief discussion of the differentiation of enterprises by size, we find that Chinese statistical reporting divides enterprises into size categories based on productive capacity, rather than by the number of workers, as is common international practice. For example, a cement plant is "large" if it has a productive capacity exceeding one million tons per annum, "medium" if its capacity is between 200,000 tons and one million tons, and "small" if it is below 200,000 tons. This classification system reflects the centrality of material balances in Chinese planning. The overall structure of industry by size was in 1980 as follows: [43]

	Percent of—	
	Enterprises	Output value
Large	0.36	25.07
Medium	0.90	18.11
Small	98.74	56.82

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[40] Fieldwork in Guangdong Province, July 1982.

[41] Fieldwork in Jiading County, Shanghai Municipality, June 1982.

[42] Ma H[illegible] and Sun Shangqing, p. 678.

[43] *Shid*[illegible], pp. 327-328.

As Figure A indicates, large size is highly correlated with characteristics of state ownership, plan, and urban, etc. A partial list of size categories for selected industries is presented in Table 1. Table 2 shows the share of industrial output from large and medium enterprises to be falling steadily from 54.8% in 1970 to a low of 42.5% in 1981, pointing to a prolonged relative decline in planned production.

Ownership: Collective enterprises

The obvious next item in our taxonomy is the division of enterprises into state and collective ownership. In 1980, there were 83,400 state-owned enterprises, which accounted for 79% of total industrial output, 69% of industrial employment, and owned 90% of all fixed assets in industry. Collective enterprises numbered 290,000 (see Table 3). Since 1978, two old forms of enterprises have also re-emerged: joint ownership (mostly between state and collective units, although a few are joint ventures with foreign firms), and private enterprises. Few statistics are available for the latter two types, and to date they remain a miniscule part of the industrial system.[44]

Somewhat inexplicably, Chinese official statements on state and collective enterprises often obfuscate rather than clarify their differences. For example, in explaining the difference between "ownership by the whole people" and collective ownership, Xue Muqiao wrote in *China's Socialist Economy* that "the former is a higher form of socialist public ownership, under which the means of production belong to all the working people as represented by the state under the dictatorship of the proletariat. Such means of production are essentially the public property of society as a whole. Collective ownership is a lower form of socialist public ownership, under which the means of production are not yet the public property of society as a whole but belong to the working people in one economic collective or another." [45] This difference in ownership in turn is said to give rise to differences in the enterprises' disposal of net income and relationship to the state plan.

According to Xue, the net income of state enterprises is remitted to the state budget, to be "handled by the state according to unified state plans and policies." In the collective sector, enterprises are to pay taxes on their net income, with after-tax income divided between reinvestment and distribution to workers. Unlike state workers, who are paid wages according to a scale unified over the whole sector, "Since the collectives are responsible for their own profits and losses, the pay varies from one to another, and equal pay for equal work, which is basically practiced among state enterprises, is inapplicable among the collectives."[46]

On their relationship to the state plan, Xue wrote that in state-owned enterprise, ". . . production is carried out by plan." In contrast, "since collective economic units are responsible for their own profits and losses, in principle, the state may issue plans on their production only as guidelines and not as binding instructions . . ."[47]

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[44] The number of licenses issued by the end of 1980 for private enterprises was estimated to be 700,000 to 800,000. Almost all were for retail outlets and other service activities. (*Shidian*, p. 324.) The 1984 *Tongji Zaiyao* shows the percent of gross value of industrial output accounted for by private and "Other types" of enterprises to be 0.8% and 1.0% for 1982 and 1983, respectively (p. 43).

[45] Xue Muqiao. *China's Socialist Economy* (Beijing, 1981), pp. 45–46.

[46] *Ibid.*, pp. 46–47.

Table 4 shows the breakdown of the gross value of industrial output between the state and collective sectors, with the latter's share declining through the mid-1960s but regaining through the 1970s to 1982 with an accelerating trend. Table 5 shows the collective sector's growth rate to have been below that of the state sector through 1965 but significantly higher during all recent plan periods including 1981 and 1982. However, conjectures about the relative shares of planned vs. unplanned output based on these figures are unwarranted, since state control has been extended increasingly to the urban collective sector. There has since the 1950s been a substantial blurring of differences between state and collective enterprises in Chinese industry, with large collectives subject to virtually the same production planning as state enterprises, and with even the small collectives losing their independent accounting status. While the sectoral differences stated by Xue Muqiao in terms of the enterprises' production and disposal of net income seem to hold for the rural collective enterprises belonging to people's communes and production brigades, they have been largely eroded for the urban collective enterprises.

This is illustrated in Table 6, which shows that in 1978, about 60% of all urban collective enterprises were in the Ministry of Light Industry. These include enterprises in the first and second light industrial systems, producing consumer goods such as bicycles, sewing machines, soap, paper, arts and crafts, etc.[48] Of the remaining 40,000 urban collective enterprises, about 6000 were under the Ministry of Textile Industry,[49] and as many as 10,000 were food processing plants under the Ministry of Commerce and the Ministry of Food.[50] Altogether, some 75–80% of the urban collective enterprises were by 1978 scattered under the supervision of various central ministries, where they are treated much like the state-owned enterprises in these systems, receiving production assignments, along with performance targets and labor allocation quotas, etc. The degree of vertical supervision and control over the enterprises varies by industry. Enterprises under the Textile Ministry were under strict production planning, since until 1984 the Ministry maintained unified allocation of raw cotton and cotton products.[51] The Second Light Industrial System (under the Ministry of Light Industry), which is based on handicraft production, is less vertically oriented, but its enterprises are subject to greater local government control.

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[47] *Ibid.*, p. 59.

[48] For a discussion of the light industrial system, see chapters 5 and 6 in Ma Hong and Sun Shangqing, by Zhou Xiandong and Jie Wenzuo, respectively.

[49] In 1979, collective enterprises comprised 40% of all textile enterprises. (Zhong Pu, "Structure of Textile Industry", in Ma Hong and Sun Shangqing, pp. 230–231). Assuming that the proportion of collective to state enterprises has been stable, it means that collectives should number 6100, out of the total of 17,100 enterprises in the textile industry in 1981 (*Zhongguo Tongji Nianjian*, 1981, (Chinese Statistical Yearbook), p. 216). The number of textile enterprises changed little from 15,200 in 1978 to 1981.

[50] *Caimao Jingji* (Finance and Trade Economics) (CMJJ), 1981:6, pp. 50–3.

[51] See *Jingji Ribao* (Economics Daily), Feb. 17, 1983, in E.A. 326, p. 1-2.

In these enterprises, all profits and losses are passed along [illegible] the ministries or "systems", and investment is financed by ministerial or system allocations. For example, enterprises in the Second [illegible] Industrial System remit their profits to the local second light industry bureau, where these funds are transferred upward or downward and used with the system.[52] Labor hiring decisions too have been taken outside of these enterprises, and workers' wages are unified throughout the ministries or systems. These are what the Chinese call "large collectives", from which virtually all collective character (as defined by Xue) has been purged.

Among the 20-25% of urban collective enterprises which are not directly under ministerial supervision, many are "sponsored" or "affiliated" collectives. These include the "May seventh" enterprises set up during the CR by schools and government organizations, to enable students and cadres to participate in physical labor, along with the more recent enterprises set up to employ workers' children, etc.[53] The only category of urban collective enterprises without close ties to the state sector is the very small-scale neighborhood factories. Under Maoist policy, however, even they came under increasing supervision by state departments. According to one report, "At present, the ownership and allocation rights of productive assets and the management of neighborhood factories are all concentrated in local administrative departments. They are 'collective' only in form; in reality they have become enterprises belonging to local governments." [54]

In view of the substantial erosion of its extraplan and independent accounting status, it seems peculiar that the urban collective sector has not only avoided being absorbed by the state sector, but has in fact expanded its share of industrial output since the mid-1960s. It can be hypothesized that the category of "collective" enterprises remains to distinguish enterprises financed with the internal accumulation of the ministerial systems from those financed by state budgetary allocations. With ministerial and local systems able to retain a greater portion of profits generated by their collective enterprises, these enterprises are in a sense the "private plots" that generate resources for use within the systems. With that interpretation, the growth of the urban collective sector through the CR period can be seen as a consequence of the ministerial systems grabbing control of the economy by strengthening the "vertical" pieces, much as local governments were expanding their control by enlarging their "horizontal" pieces. At the same time, this development is also an administrative expedience that allows the state to pay lower labor costs, since average wages in collective enterprises are one-half to one grade lower than those in state enterprises, and collective workers are entitled to fewer fringe benefits such as pensions and medical benefits than state workers.[55]

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[52] Fieldwork, 1982. Also see Shue, pp. 166-168.

[53] The Qingdao Forging Machinery Plant set up an affiliated factory to employ 95 dependents of its workers, and it does processing work for the parent plant on a subcontracting basis. Byrd, Tidrick, Chen Jiyuan et al., p. 90.

[54] CMJJ, 1982:10, p. 28.

[55] Ma Hong and Sun Shangqing, pp. 187-188.

State-owned enterprises

The fragmentation of control and crisscrossing lines of command in Chinese industry by vertical, ministerial and horizontal, regional systems are even more striking in the state sector. In order to focus on the differentiation of enterprises by the degree of state plan control, we will again concentrate on the two-fold implications of ownership: the financial aspects involving the source of investment funds and destination of remitted profits, and the material aspects involving the source of investment goods, current input supplies and the distribution of outputs.

The broad category distinguishing enterprises in terms of their financial interaction with the state is *yusuan nei* and *yusuan wai,* in-budget or extra-budget, which indicates whether an enterprise's profits (or losses) are included in government budget revenues under "enterprise income". Profit remittances of extra-budget enterprises go either into extrabudgetary funds of local governments or enter accounts of ministerial systems, bypassing the budget. By definition, all collective enterprises are "extra-budget", since their financial interaction with the state takes the form of tax payments rather than through profit remittance. *The Contemporary Handbook of Chinese Economic Affairs* indicates that there were some 40,000 in-budget enterprises in 1980, a little less than half of the 83,000 state-owned enterprises.[56]

For national accounting purposes, "ownership" in the state sector is defined by the claim on remitted profits: a centrally owned enterprise remits its profits directly into the central budget, a provincial enterprise remits its profits to the provincial budget, etc. By this criterion, only 3% of the 83,000 state-owned industrial enterprises were directly owned by the central government *(zhongyang zhishu)* in 1980. The rest belonged to local governments *(difang zhishu)* and remitted their profits to local government revenues.[57]

Under the "local" category, little information is available about the respective shares of enterprises belonging to the provincial, city, prefectural and county governments. In fact, very little is known about the role of the province in industrial development. During the CR, it was felt that provinces should manage only a few "backbone" enterprises, with the main initiative in industrial development to come from prefectural and county governments.[58] One would expect that provinces own relatively few enterprises, but that they would be the larger and more important ones.[59] This is borne out by one account from Yunnan Province, where it was reported in 1980 that the county and prefectural levels owned over 1700 industrial enterprises, accounting for 69% of the number of enterprises and 35% of total industrial output in the state sector.[60] Given the more rapid pace of local (subprovincial) industrialization in the more developed provinces during the CR period, we can perhaps assume the proportion of county and prefectural enterprises to be higher for China as a whole than the figure for Yunnan indicates. An estimate based on the above, and assuming that all large and medium enterprises belong to the central and provincial levels, would apportion shares of state sector industrial output as follows: 40–45% from central and provincial enterprises, 40–45% from county and prefectural enterprises, with the remaining 10–20% from city-owned enterprises.

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[56] P. 330. This is derived from the figure of 16% of in-budget enterprises under profit-retention in 1980.

[57] *Ibid.*, pp. 322-323. This definition of ownership by profit remittance is also used by Gong Guanshi, "How to Solve the Problem of Too Many Bosses in Industrial Enterprises" JJGL, 1984:1, p. 6.

[58] See, for Example, the article on Henan in *Renmin Ribao (People's Daily) (RMRB) May 28, 1970.*

[59] This may have given provinces relatively little control over real resources, since the large scale, "decentralized" enterprises were often still tightly controlled by central ministries. See discussion below.

Even if we could obtain separate estimates for central and provincial enterprises, it would be simplistic to assume that central control extended only to centrally owned enterprises. As the earlier discussion of collective enterprises indicated, ownership does not necessarily translate into control. Indeed, until fiscal decentralization was introduced in 1980, the size of local expenditure budgets was not always correlated with the level of local revenue incomes, so that financial ownership of an enterprise was often little more than an accounting concept. Since the crucial instrument of control in a planned economy is material allocations, the center-local distinction among enterprises has to be examined via the material interaction between state and enterprise.

For planning purposes, there are four basic types of enterprises:

(1) Enterprises under central leadership, which receive all production, supply and distribution (delivery) plans from central ministries, along with the wage bill, investment and financial plans.

(2) Enterprises under local leadership, which receive all plan assignments from local government departments.

(3) Enterprises under dual, primarily central, leadership, which receive their production, supply, distribution and investment plans from central ministries, along with the wage bill and financial plans. Local government participation is limited to labor allocation and Party work.

(4) Enterprises under dual, primarily local, leadership, which receive production, supply and distribution plans from central ministries, but for which local governments provide financial plans, along with labor allocation and Party leadership. From these four basic types, many permutations can be obtained by substituting province, city, prefecture, or county in place of "central" and "local".[61]

Of these, types (1) and (2) are "pure" categories that are easy to classify. Type (1) reportedly contains very few enterprises—in 1978 there were under 2000, all in defense industries.[62] These are large-scale enterprises of national and strategic importance, and their production is wholly within the central sphere of control. Type (2) contains small-scale enterprises wholly within the local sphere of control: their construction and operation involve only resources under local management, and their output stays within the local pool of materials. Examples of type (2) enterprises include small factories manufacturing cement and other building materials, food and leather processing plants, etc. With the growth of local industry and extraplan trade, the scope of activities for type (2) enterprises grew and expanded beyond local resources and markets. In the extractive industries, the industrial province policy also transferred to local governments the right to develop many resources not already under central government exploitation, including some large deposits. Through the 1970s, local shares of output rose in the production of coal, phosphate rocks, iron ores, etc., to some extent blurring the distinction between central and local interprises.

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[60] *Jingii Wenti Tansuo* (Exploration of Economic Issues), 1981:4, p. 54.

[61] Gong Guanshi, p.6.

[62] *Shidian*, pp. 157–160, and Liu Suinian, "Issues on How to Correctly Handle Central-local Relations in the Economic System", in Liu Guoguang, op. cit., p. 25.

Types (3) and (4) are much more complicated, involving differing shares of central and local participation. In Type (3) are many of the large-scale enterprises decentralized to local control in 1970, such as Anshan Iron and Steel. It may even be that the entire category is made up of these enterprises, although not all decentralized enterprises are under this type of dual leadership.[63] In Type (4) are the locally owned, "keypoint" enterprises which rely to some extent on higher level supplies and supervision, such as the Qingdao Forging Machinery Plant. Many in this category are "demonstration" units built during the CR program to set up local enterprises in key industries with central government aid, such as the "five small industries".

In terms of financial "ownership", enterprises in (1) are centrally owned, and those in (2) and (4) are locally owned. Some ambiguity remains over whether enterprises in (3) come under central or local ownership, since they (or at least many of them) are "decentralized", but continue to receive financial plans from the center, presumably including profit remittance targets.

In principle, the planning unit that makes the production assignments provides the inputs and allocates the outputs. Enterprises in types (1) and (3) are *tongpei* enterprises, whose outputs are under "unified allocation" by the State Planning Commission and central ministries. (A qualification that has to be made is that beginning in the early 1970s, local governments were allowed to retain a fixed, minor portion of output from type (3) enterprises for local allocation.) In 1980 there were 84 coal mining administrations (with 553 mines), 20-odd iron and steel enterprises, 53 large and medium cement plants, and over 10 key forestry regions under *tongpei*. Along with centrally financed imports and output contracted by central ministries from other enterprises (probably in Type 4), *tongpei* enterprises gave the central government control over 58% of coal, 74% of steel materials and 36% of cement allocations in 1981.[64]

In practice, the lines are not so neatly drawn between central and local planning. Due to the fragmentation of control over material resources by ministries and by the different levels of government, sometimes none of the planning units have sufficient resources to supply all the inputs required for production in an enterprise. With the application of the above-stated principle, shared responsibility over input supplies led to shared control over output allocation, giving rise to multiple leadership and crisscrossing lines of command over enterprises, such as we see in types (3) and (4), and in the Qingdao Forging Machinery Plant.[65]

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[63] It was reported that in 1975, "over half" of decentralized enterprises were being managed by central ministries. (Liu and Wang, pp. 8-9.)

[64] *Shidian*, pp. 312-313.

CONCLUSION

Given this immensely complicated and messy system, it is difficult to reach definitive conclusions in dividing the central and local shares of output in Chinese industry. In the state sector, enterprises in types (1) and (3) are clearly in the central sphere of influence, comprising virtually all large and medium enterprises, with some exceptions in the extractive industries. Along with plan control over most of the output of urban collective enterprises, this gave the central government control over perhaps 50–55% of GVIO in 1977-78.[66] Through partial ownership rights and material allocations, central influence is extended into the local sector, where it is obviously greater over type (4) enterprises than over those in (2). This influence takes the form of ministerial supervision. For example, local farm machinery plants are under the purview of the Ministry of Machine-building (during the CR the First Ministry of Machine-building), from which they receive technical guidance, some production equipment and some current inputs, and to which they submit periodic reports.[67] It is difficult to generalize about the degree of ministerial involvement in local enterprise operations, since it varied greatly from one industry to another. What is clear is that ministerial influence declined across-the-board during the CR, with the progressive decentralization of material allocations.

During the CR period, central control was exercised through two mechanisms: ideological control through the Party, and material allocations. The importance of ideological control (moral exhortations) should not be underestimated, although it was probably more effective in channelling resources away from "nonproductive" uses than in determining the specific pattern of industrial investment. Initially, when central transfers comprised virtually all category I and II materials allocated by local governments, the latter were little more than intermediaries in carrying out central policy. With the growth of local industries, however, local governments began to acquire a resource base independent of central control. Figure B shows the sources of materials allocated by central and local governments. While the 1970 decentralization of central enterprises did not transfer very much real control to local governments, the subsequent reform which allowed local governments to retain a portion of the output from these enterprises did reduce the size of flow A to the pool of central materials and added flow F to the local pool. The more rapid growth of E relative to A gradually shifted increasing shares of key materials to local allocation (see Table 8). This shift was accelerated dramatically after 1978; after 1980, flow G was made possible by the decentralization of foreign trade management, which allowed local governments to retain a portion of their foreign exchange earnings for local use.

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[65] The practice of pooling financial resources during the CR period in the big push to industrialize also led to complicated shared ownership arrangements, which are not discussed here.

[66] This estimate is based on the assumption that output from all large and medium enterprises is subject to state plan control, even when these enterprises are nominally under provincial administration. In addition, two-thirds of urban collective industrial output is assumed to be included in state plans. This figure is roughly in line with information given to the American Economics Study Team in December, 1984, who were told that the 1984 central plan included 30–40 percent of GVIO.

[67] Fieldwork in Guangdong Province, 1978 and June 1982.

With the steady shift of resources to local control, central influence over local enterprises dwindled. The fact that ministries had little real control over local enterprises by the end of the CR was illustrated by the attempt by the First Ministry of Machine-building to reorganize production of small 4-wheeled tractors and hand-tractors. Calls beginning in 1978 to close down or merge most of the nearly 100 local small plants fell on deaf ears. By the end of 1982, over 80 were still in operation, even though only 12 had received approval from the ministry.[68] Similarly, efforts by the Ministry of Chemical Industry to close down some of the less efficient county-run fertilizer plants (type 4 enterprises) often met with local resistance. When the Ministry cut off coal supplies in 1982 to one particularly high-cost plant in Guangdong Province, the County Economic Committee intervened, authorizing subsidies of over one million yuan/year to help the plant buy coal from extra-plan channels.[69]

Ordinarily, one would expect state control to be more effective in heavy industry because of the higher degree of "intermediateness" in that sector, where production requires greater support from other enterprises and sectors controlled by the plan. In China the reverse appeared to have been true during the CR, when state control over heavy industrial inputs was steadily eroded with the growth of local machine-building and iron and steel industries. In the program to build small-scale chemical fertilizer plants, for example, local construction accelerated and far exceeded state targets in provinces which acquired the capability to supply whole sets of fertilizer production equipment, freeing them from the pace set by state allocations.[70] By the end of the CR period, efforts by the central government to curb local heavy industrial development became increasingly ineffective—not only could local governments mobilize many independent resources to build pet projects, they also had on their side the ideological sanction given by the industrial province policy.

On the other hand, state control over light industry was maintained through tight agricultural procurement policies, which left very little of the raw materials needed for local light industrial production. In addition, ideological restraints against "going after high profits" played a role in limiting local entry. It was this tight grip on light industry that allowed the central government to maintain control over the orientation of local investment—long after it had lost control over the pace—ensuring that the pattern of heavy-industry dominated investment was replicated in every province.

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[68] New China News Agency, April 19, 1983, in British Broadcasting Service, *Summary of World Broadcasts*, W1234/A/22; and see Christine Wong (1982).

[69] Fieldwork in Guangdong Province, June 1982.

[70] Christine Wong (1979), in Lee Ngok and Leung Chi-keung.

In terms of the center-local issue, "collective" ownership appears to be a meaningless concept in the urban sector, since urban collective enterprises are operating under rules and incentives that are virtually identical to those applying to state-owned enterprises. Paradoxically, in the development of local industry, enterprises in type (2) acquired many "collective" characteristics, such as extraplan status, independent disposal of net incomes, etc., with the "collective" being defined as an administrative and territorial unit. This is a development that made them very similar to enterprises under rural collective ownership, creating a continuous spectrum of enterprises that cuts across ownership systems (as defined by state vs. collective). In this spectrum, plan control diminishes with administrative distance from Beijing.

III. Implications of Self-Reliant Local Industrialization

In an environment with weak planning and coordination capabilities, where transport and communications facilities are relatively backward, local, self-reliant industrialization was in many ways a rational policy choice. Decentralizing decisionmaking authority to local governments and providing incentives to encourage local development clearly succeeded in mobilizing local resources and initiative for industrialization. At the same time, it helped to create a more dispersed pattern of industrialization that contributed to reducing regional inequalities. When pushed to excess, however, the policy of autarkic regional development had some obvious costs: among them the neglect of comparative advantage and locational economies, the duplication of industries, the fragmented markets and the inability to tap scale economies. For example, during the CR period, 28 of the 29 provinces and municipalities built their own iron and steel industries, in spite of the fact that 16 of them had to rely on iron ores shipped in from elsewhere to supplement inadequate local resources.[71] The effort to become more self-sufficient in coal supplies led the southern provinces to devote substantial resources to many costly and low-yield projects, including the Lufeng Coal Mine in Guangdong, where the coal seam was only 0.3 meters thick, and production costs exceeded 100 yuan/ton. Some mines reportedly turned out coal with such low heating values (1000-2000 kcals/kg) that they became net energy users.[72]

During the Maoist period, it was likely that some of this regional replication of production was deemed necessary and worthwhile for ideological and strategic reasons. Once set in motion, however, the industrial province policy brought a good deal of unintended duplication and waste as well. Under the policy, the fragmentation of resources and the division of planning responsibility among central ministries and local governments created a discontinuous incentive structure that distinguished between enterprises "inside" the system from those "outside". The principle of "whoever builds and manages an enterprise has the use of its output" strengthened the link between ownership and control, differentiating enterprises in terms of control over material and financial resources generated, and enhancing the natural tendency of bureaucratic systems toward "departmentalism" and "localism". This tendency of each unit to protect its own was exacerbated by the declining ability and willingness of the centural government to effect inter-regional transfer of raw materials and resources during the CR.[73] To insulate their enterprises from supply shortfalls and to extend their control over resources, central ministries, administrative organizations and localities all took advantage of the lax financial restraint to engage in vertical integration, vying with each other to build enterprises that could be treated as "private plots".

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[71] Ma Hong and Sun Shangqing, p. 31.

[72] *Ibid.*, p. 662.

The amount of duplication that resulted was staggering. In Huangshi, a medium-sized city in Hubei Province, there were in 1980 four iron and steel mills located virtually side-by-side, belonging separately to the Ministry of Metallurgy, the province, the city, and the suburban Daye County. In the same city, there were also 24 cement plants, operated separately by the Ministry of Building Materials, provincial, municipal, county and commune authorities and even the armed forces.[74] The problem is even more serious in the machine-building industry: in 1978 there were over 100,000 machine-building enterprises in China, scattered under ministerial, provincial, municipal, prefectural, county, and even commune control. Due to the duplicative nature of many of these enterprises, the rates of equipment utilization were reportedly very low: 50–60% in the "key" enterprises, and as low as 30-40% in the others.[75] In one province alone, there were 62 enterprises making the same type of lathers, belonging to different systems.[76]

A corollary of the problem of duplication and vertical integration is that production came to be scattered under different functional and administrative systems, with local water conservancy departments running their own cement plants, public health departments operating pharmaceutical plants, and the banking system setting up stationary supplies workshops, etc. Due to such practices, over 14% of total 1981 cement output reportedly came from "outside the trade" *(hangye wai)*.[77] Some anomalies were inevitable: for example, one visitor learned that the Yunnan Handtractor Plant belongs to the Yunnan Provincial Bureau of Light Industry.[78] Due to difficulties in obtaining stable supplies of raw materials for consumer goods, many enterprises in the light industrial system in fact turned to producers' goods during the CR, often under subcontracting arrangements for heavy industrial enterprises. At one point consumer goods accounted for as little as 30% of the total output of collective enterprises in the light industrial system. Even after some adjustments had been made, producers' goods still accounted for 45% of their output in 1978.[79] Conversely, in 1980, some 40% of light industrial output came from enterprises in commercial departments, outside of the light industrial system.[80]

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[73] For examples, see Chen Jiyuan.

[74] Ding Hua, "A Basic Cause of Poor Results of Investment Lies in the Economic Management System—an Investigation of the Municipality of Huangshi", *Jingji Yanjiu* (Economic Research) (JJYJ), 1981:3; translated in E.A. 139, pp. 40–52.

[75] Ma Hong and Sun Shangqing, pp. 748–749.

[76] JJYJ 1980:7, p. 9.

[77] "A Survey of Technical and Economic Indices of Cement Production by Small Factories in the Country in 1981", *Shuini* (Cement) 1982:10; translated in E.A. 305, Table 2, p. 32.

[78] This information was generously given to me by Lee Travers, 1982

[79] Ma Hong and Sun Shangqing, p. 182.

With production scattered under different systems, no single administrative or functional (ministerial) unit has jurisdiction over all activities in the same region or industry. The crisscrossing lines of command stemming from ownership rights and material allocations in this structure encouraged both administrative and functional superiors to intervene in enterprise affairs. On the one hand, central ministries complain about local meddling in type 3 enterprises, often adding supplementary production assignments to enterprise plans. On the other hand, local officials complain about meddling by ministries and superior administrative units in local enterprise operations.[81] The result of having "too many bosses" exacerbates problems of management and planning, with enterprises often receiving conflicting targets from different superiors, and no clear lines of rights and responsibilities to guide their actions. In the post-Mao period, this confused command structure has posed obstacles to efforts to reorganize industrial production along lines of specialization and division of labor, with all "bosses" resisting attempts to undercut their customary rights and privileges.

The presence of significant numbers of enterprises in the "wrong" systems, producing outside their "trades", also raises serious questions about the reliability and coverage of current statistics. Even when production data are reported, the present statistical categories may be inadequate to accommodate them. A case in point is the handling of industrial output from commune and brigade enterprises. Until 1982, only output of commune enterprises meeting set standards were included in the gross value of industrial output. Output from commune enterprises falling below the standards were lumped together with brigade and team industrial output and included in the gross value of agricultural output.[82] With the continued growth of industrial activities at the brigade and team levels, the gross value of agricultural output began to include significant amounts of industrial output under this accounting system. In Hebei Province, for example, industrial output from enterprises at the production team level alone were accounting for 13.1, 16.6, 24.5, and 24.9% of GVAO for the years 1976–1979, respectively. In the Langfang, Cangzhou and Hengshui Prefectures, the value of team industrial outout accounted for an average of 45% of GVAO in 1980.[83] In view of the serious distortion this brought to the GVAO accounts, a change was finally introduced in 1982 to begin moving team and brigade industrial output to GVIO accounts.[84] Ironically, this occurred just as organizational changes brought by rural reforms were creating the new categories of joint and private enterprises. Furthermore, the category of "commune and brigade enterprises" was itself renamed "xiangzhen qiye", or town and village enterprises.[85] Whether these changes will be quickly absorbed into the statistical framework remains to be seen.

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[80] These are called "shangban gongye". *Caimao Jingji* (Trade and Financial Economics) 1981:6, pp. 50–53.

[81] For contrasting perspectives from the top and bottom, see Gong Guanshi; and the article by the Economic Committee of Lanxi County, Zhejiang Province, "Macroeconomic Management Must Be Improved in Order to Raise Enterprise Standards", JJGL 1984:1, pp. 37–38.

[82] Yang Meitong, *Economic Accounting for Commune and Brigade Industries* (Beijing, 1980), pp. 19 and 21.

[83] Xu Shugeng and Li Linjie, "Value of Industrial Output of Production Teams Should Be Included in the Gross Value of Industrial Output", *Tongji* 1982:5, pp. 18–20; translated in E.A. 300, pp. 44–49.

[84] See TJNJ 1983, pp. 150 and 582–583.

In the transport sector too, national highway transport data include only the services performed by transport bureaus and departments. Since the transport departments own only a small portion of all civilian transport vehicles (13.4% in 1980), the importance of highway transport is probably seriously underestimated in statistical reports.[86] These examples point to the real possibility that the current statistical system is seriously deficient in keeping track of economic activities, since it has been slow to adapt to the changing structure of the Chinese economy. With substantial amounts of output and material allocations now outside the central plan, the scattering of production in different organizations and systems raises the likelihood that some activities are falling between statistical categories and go unreported.[87]

IV. Prospects for the 1980's

In some ways, the current problems of Chinese industry are the results of past policy successes. After over a decade of rapid growth in local industries, the local sector had come to rival the size of the state sector by the end of the CR period. In its original concept, the dualistic development strategy had called for concentrating the state's scarce resources in ensuring production and growth in the priority sector, which comprised of large-scale heavy industries that were key to China's modernization. The local sector was to develop on the basis of local resources, supplying consumer goods for the local markets as well as producer goods for agriculture and local industries.[88] This sectoral division of labor was reinforced by applying different constraints and incentives to the two sectors: while the state sector was subject to plan assignments and planned allocation of resources, the extra-plan local sector was given a great deal more flexibility to respond to economic incentives.

The state's willingness to tolerate market activities in the local sector was probably predicated on the assumption that the local sector would play a supplementary role to the plan sector, and that its activities could be confined to the periphery. As it grew in size, however, the local sector began to encroach upon activities previously reserved for the state sector, particularly in the heavy industries. Having grown out of their supplementary role, local enterprises became increasingly competitive with the state sector for resources.

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[85] As an indication of this, the *Zhongguo Shedui Qiye Bao* (Bulletin of Chinese Commune and Brigade Enterprises) changed its name to *Zhongguo Xiangzhen Qiye Bao* in fall 1983.

[86] JJGL 1980:1, p. 42.

[87] In discussing the reliability of statistical reporting in China, Thomas G. Rawski once asserted that central allocation of materials "precludes serious falsification of output quantities, for detection is inevitable once the center receives complaints from units designated to receive nonexistent products." (p. 110, "China's Industrial Performance, 1949-73", in Alexander Eckstein, ed., *Quantitative Measures of China's Economic Output*, Univ. of Michigan Press, 1980.) In view of the changes in the economic structure and the material allocation system during the CR, this assessment probably needs to be revised.

[88] For a discussion of the sectoral division of labor, see Carl Riskin, "Small Industry and the Chinese Model of Development", *China Quarterly*, April/June 1971; and C. Wong (1979), *Rural Industrialization in the People's Republic of China*.

This erosion of intended sectoral divisions of labor gradually undermined the rationale for the differentiated treatment of enterprises and choice of technology in the two sectors. The problems of management and supervision created by the complex and unwieldy command structure (with multiple "bosses"), which grew out of the improvised sharing of resources and responsibilities in industrial planning during the CR period, were also increasingly seen as major causes of deteriorating performance in the industrial sector. Clearly, something had to be done to rationalize the industrial structure. In principle, two options existed: unify the command and incentive structure by strengthening central control, or break down the entangled bureaucratic barriers through market reforms.

By the late 1970s, however, reasserting central control was no longer a viable option. Cycles of centralization-decentralization are necessarily asymmetric: decentralization measures tend to be implemented to a higher degree than attempts to recentralize. After several rounds of these cycles, by 1978, the decentralization of the Chinese economy was virtually irreversible. Having given up major portions of material and financial resources to local control, the central government's options for reforming the economy were limited to programs acceptable to local governments. Support for this argument can be found in the failed attempts to reassert ministerial supervision over local enterprises and to recentralize the allocation and management of production materials, especially during 1977-1978.

On the positive side, some legacies of the industrial province policy have been quite beneficial to the current effort to introduce market reforms. The interregional trade outside of state plan channels that grew with local industrialization embodied two essential characteristics of market exchanges: (1) buyers and sellers entered into exchanges voluntarily, and (2), prices implicitly or explicitly reflected supply and demand conditions. During the CR period, this trade was limited to alleviating temporary imbalances, with a variety of ideological and administrative sanctions to prevent localities from reorienting their economies to take full advantage of this trade. With most of these restrictions lifted in the post-Mao period, preexisting channels of extra-plan, interregional trade have been easily tapped to increase material flows rapidly outside the plan. By early 1983, materials traded outside plan channels were reportedly accounting for some 20-30% of the total at the provincial level, 30-40% at the prefectural level, and over 50% at the county level.[89] For selected materials, extra-plan trade was accounting for more than half of totals available even at the provincial level.[90] Price flexibility too is perhaps made more palatable in the reform period by the precedents set in this trade.[91] Finally, the disruptive impact of the generalized price reform that has been announced will be more limited than might be expected—after all, significant portions of local materials have already been moving at market-like prices for some time.

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[89] *Wuzi Guanli* (Materials Management), 1983:4, p. 1.

[90] *Ibid.*, pp. 8, 13-14.

[91] This point is made by Bill Byrd in "Reform of the Material Supply System", unpublished paper, January 1984.

On the other hand, the market form that developed during the CR and being transferred to the post-Mao period poses serious problems. This is a market in which the principal economic agents are not production enterprises; rather, they are local governments with monopoly control over commerce within their regions, and with substantial price-setting authority over local products. Aside from the authority to set local prices for category III materials, under the industrial province policy, local officials were also allowed to set higher, "temporary" prices for local output of category I and II materials to enable local, high-cost plants to break even. Without a good system of supervision, these "temporary" prices were often applied for much longer than their intended one-two year periods, in effect giving localities *de facto* authority to set prices for products nominally under state control. In the post-Mao period, fiscal reforms have allowed localities to retain profits from all local enterprises, including those in types 3 and 4. In addition, they are given a great deal of autonomy in setting taxes and tax rates for the enterprises.[92] All these gave local officials even more vested interests in sustaining local enterprises, exacerbating the tendency toward protectionism.

Indeed, it can be argued that among the legacies of the industrial province policy, the most harmful to post-Mao attempts to reform the economy is the powerful role assumed by local governments. Having grown accustomed to disposing of substantial resources, local governments are now actively resisting efforts to curb their influence. At least through 1982, attempts to reorient decentralization along "economic" lines, by transferring decisionmaking authority to production units and allowing them to interact through the market, had failed to penetrate the local sector. Instead, reform measures have often been reinterpreted by local officials to transfer even more resources to local control.[93]

This problem can be illustrated with an example from Shanxi Province, where, in 1981, a survey of 14 counties found that while coal mines sold their output to local users at 7–8 yuan/ton, sales to other provinces brought prices averaging over 27 yuan/ton.[94] The existence of this large gap between "external" and "internal" prices demonstrates the problematic local implementation of market reforms. While actively promoting sales outside the province to reap the benefit of higher "export" prices, provincial and subprovincial governments were resisting the extension of market reforms into Shanxi Province itself. They continued to make coal delivery assignments to local mines, ensuring that local enterprises and households were able to buy coal at state prices, insulating them from the inflationary impact of market adjustments and avoiding passing along any decision-making authority to the mines.

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[92] Fieldwork information, 1982.

[93] For a more detailed analysis of how reforms have been reinterpreted by local governments, see Christine Wong (1985).

[94] Hao Shengde, "From the Changing Production Costs in Commune and Brigade Coal Mines to a Discussion of the Need to Adjust Prices and Taxes," *Jingji Wenti* (Issues in Economics), 1982:5, p. 42.

To date, post-Mao reforms have created a peculiar and extremely imperfect market. During the 1979–1982 period, the attempt to introduce piecemeal market reforms in Chinese industry, in an environment where prices and taxes were highly distortive, and where enterprises were not competing on terms even approximating equality, brought an outcome that was worse than either a centralized planning or a completely decentralized market solution. The efficiency gains of dxa competitive market could hardly be expected when economic agents possessed significant market power and price-setting authority. Instead, market adjustment mechanisms were weak and distorted, with the result that industries yielding high net revenues (profits plus taxes) attracted new entrants in excess of supplies and markets. Once in place, these new enterprises were sustained and protected by local governments, and the outcomes often resembled more closely those of the Chamberlinean monopolistic competition model, characterized by duplication, excess capacity, and high costs.

At the same time, spreads between state and market prices grew uncontrollably.[95] In an attempt to maintain control over the allocation of resources in the planned sector, the central government has tried to keep prices fixed for materials in categories I and II, excepting selected materials for which supply and demand were not in serious imbalance. Excepted from fixed prices are also output from extra-plan activities, including above-plan output and excess inventories of state enterprises and materials bureaus. In their implementation, however, local governments have tended to interpret "plan" and "extra-plan" liberally to allow growing portions of local output to be sold at extra-plan prices, especially in interregional trade, and as disguised subsidies to ailing enterprises.[96] In some cases, local state-owned enterprises have even been reclassified as "joint ventures" and "collectives", etc., to circumvent price control over key materials.[97]

The present situation of differentiated treatment for state and local enterprises is clearly unsustainable. In the words of one senior economist at the Chinese Academy of Social Sciences,[98]

> With multiple prices, there is a tendency for enterprises to seek to maximize their own interests by ducking plan assignments and chasing after extraplan sales. . . . The result is that frequently production and delivery plans are underfulfilled, while extraplan assignments are repeatedly overfulfilled, with extraplan activities undermining the

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[95] There was a rapid proliferation of new types of extra-plan prices through 1983: in addition to "negotiated" prices, there were "temporary", "local", enterprise "self-sales" prices and a variety of surcharges, all adding up to higher average prices for producers' goods. See Zhang Hongming, "Let's Try to Analyze the Problem of Rising Prices in Shanghai Municipality's Procurement of Raw Materials" JGLL 1983:4, pp. 41–44; and Hu Yunhong, "The Issue of Enterprise Self-sales is Worth Discussing", CMJJ 1984:3, pp. 58–60.

[96] The Example cited earlier of the phosphorus fertilizer plant producing and selling cement at the "negotiated" price was a case where the county economic committee allowed the plant to do this as a way of covering its losses in fertilizer production, i.e., a subsidy.

[97] In my fieldwork in 1982, I came across several cases of such abuses. The indication that these phenomena were pervasive came from a State Council directive in spring 1983 specifically prohibiting "setting up false categories" of joint operations to raise prices, and other illegal price increases by "so-called 'mutual consent' ". JGLL 1983:5, p. 3.

[98] Shen Liren, "Let's Try to Discuss Multiple Prices—a Concrete Problem in Price Reform", CMJJ 1984:6, pp. 34–35.

> plan. This has also brought unequal benefits and costs to enterprises. Those with relatively greater plan assignments feel "burdened", while extraplan enterprises are reaping all the profits.

Ironically, in the post-Mao period, by eliminating restrictions on the market activities of the local sector, the state somewhat inadvertently reversed the fortunes of the state and local sectors. Instead of being the privileged sector with priority access to scarce inputs, the state sector often finds itself at a competitive disadvantage against local enterprises, which are freer to take advantage of higher prices and new opportunities offered by the market. The efficiency implications of technological dualism are likely to be adverse when production in small-scale enterprises displaces that in large-scale enterprises, especially in industries with excess capacity.

Given the recent reaffirmation of commitment voiced at the Third Plenum of the 12th Party Central Committee, market reforms will continue to be pushed forward in post-Mao China. What are the prospects for real "economic" decentralization? Interestingly, after five years of what looked like ad hoc experiments, industrial reform finally moved onto the right track in 1983 and 1984. Aside from the announcement of a forthcoming price reform, there are for the first time measures aimed specifically at redressing the problems of excessive local government influence and the irrational command structure in Chinese industry.[99] A potentially important reform measure being implemented is the tax-for-profit scheme introduced in 1983. Under this scheme, all state-owned enterprises will be shifted gradually from the system of remitting profits to superior administrative units to paying income taxes on net profits, with adjustment taxes to equalize after-tax net income across similar enterprises.

If successfully implemented, this scheme will produce several important changes toward simplifying the ownership and control structure of Chinese industry. First of all, it will eliminate the differences between state and collective enterprises in their financial interaction with the state, and will in fact make them all "extrabudget." Under this system, all enterprise income tax revenues will be pooled and apportioned among the different levels of government, eliminating the present differentiation of enterprises by ownership. At least in principle, this should put enterprises of types (2), (3), and (4), as well as collective enterprises, on the same basis in terms of revenues generated for local coffers. By separating the revenues and expenditures of local governments from the specific ownership and profitability of their enterprises, it is hoped that this measure will help to alleviate the tendency toward "localism" and protectionism. It is also supposed to reduce the amount of local government intervention in enterprise operations by standardizing enterprise financial obligations to the state, reversing the trend of increasing local government supervision in recent years.

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[99] "Decision of the Central Committee of the Communist Party of China on Reform of the Economic Structure", BR 1984:44, Oct. 29.

Another dramatic reform measure to be implemented beginning in 1985 is that of contracting out small-scale state enterprises to individuals or groups of individuals, which may eventually turn over to private and cooperative management some major portion of the 55+% of total industrial output now being produced by small-scale enterprises. If fully implemented, it would also revert the structure of industrial management to that existing in the early-mid 1950s, with state management of large-scale, key enterprises, and private/semi-private management of small-scale enterprises. Putting aside the question of appropriate ownership forms under socialism, this measure should go a long way toward wresting control of small-scale enterprises from local governments.

It is of course too early to tell whether these reforms will finally succeed in rationalizing the structure of Chinese industry, since many kinks remain to be ironed out in their implementation. Given the recent history of reform implementation, and given the potentially dramatic impact of these measures on stripping local governments of much of their power base, it seems unlikely that they face a smooth road ahead. Nevertheless, these measures represent some necessary changes for improving industrial performance in the 1980s; they indicate that at last industrial reforms are moving in the right direction.

Figure A. ENTERPRISE TYPES

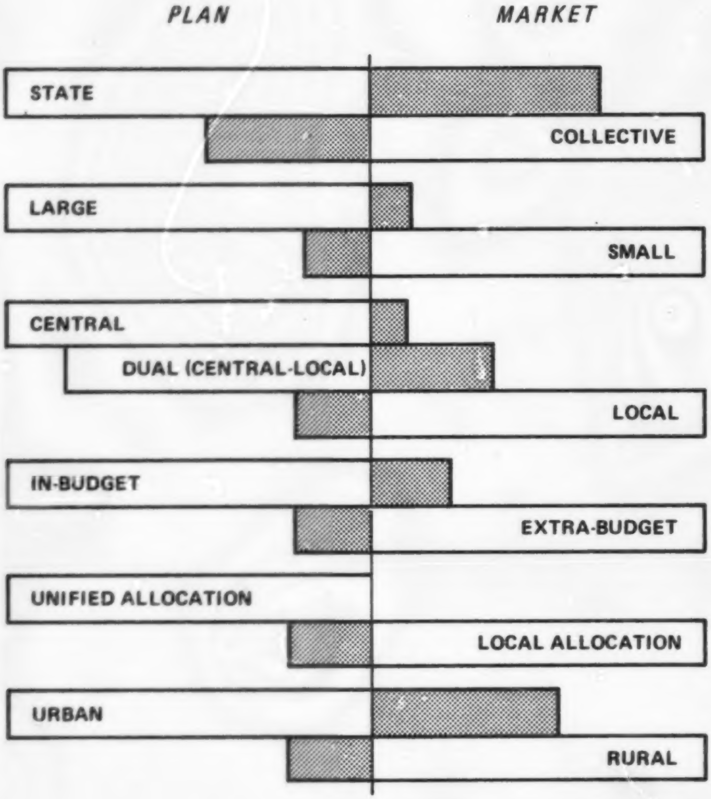
PLAN
MARKET
STATE
COLLECTIVE
LARGE
SMALL
CENTRAL
DUAL (CENTRAL-LOCAL)
LOCAL
IN-BUDGET
EXTRA-BUDGET
UNIFIED ALLOCATION
LOCAL ALLOCATION
URBAN
RURAL

Figure B. SOURCES OF CENTRAL AND LOCAL MATERIALS

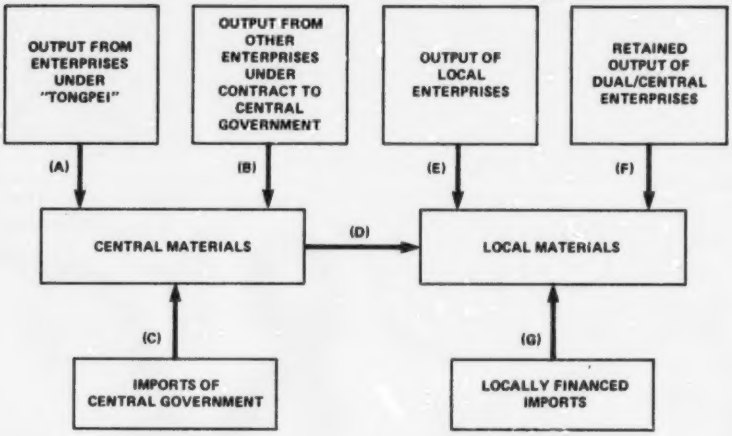
OUTPUT FROM ENTERPRISES UNDER "TONGPEI"
OUTPUT FROM OTHER ENTERPRISES UNDER CONTRACT TO CENTRAL GOVERNMENT
OUTPUT OF LOCAL ENTERPRISES
RETAINED OUTPUT OF DUAL/CENTRAL ENTERPRISES
(A)
(B)
(E)
(F)
CENTRAL MATERIALS
(D)
LOCAL MATERIALS
(C)
(G)
IMPORTS OF CENTRAL GOVERNMENT
LOCALLY FINANCED IMPORTS

TABLE 1.—SIZE CATEGORIES FOR SELECTED INDUSTRIES, BY ANNUAL OUTPUT

Industry	Large (over)	Medium	Small (below)
Iron and steel (thousands tons of steel)	1,000	100–1,000	100
Iron smelting (thousands tons of pig iron)	1,000	200–1,000	200
Metal Processing:			
Heavy (thousands tons)	30	5–30	5
Light (thousands tons)	20	3–20	3
Coal mining (thousands tons)	5,000	2,000–5,000	2,000
Synthetic ammonia (thousands tons)	150	45–150	45
Phosphorus fertilizer (thousands tons)	500	200–500	200
Cement (productive capacity—thousands tons)	1,000	200–1,000	200
Cotton yarn (thousands spindles)	100	50–100	50
Paper (productive capacity—thousands tons)	30	10–30	10
Watchmaking (productive capacity—thousands)	1,000	400–1,000	400
Bicycles (productive capacity—thousands)	1,000	300–1,000	300

Source: Chen Shengchang, "The Correspondence between Enterprise Size Structure and Enterprise Organization," in Sun Shangqing, ed., Lun Jingji Jiegou Duice (On Policies Regarding Economic Structure) (Beijing, 1984), p. 310–317.

TABLE 2.—SHARE OF GROSS VALUE OF INDUSTRIAL OUTPUT FROM LARGE AND MEDIUM ENTERPRISES [1]

Year	Gross value of industrial output (in billions yuan)	Large and medium enterprises' share (billions yuan)	Percentage
1970	240.1	132.7	54.8
1971	238.9	127.9	53.5
1972	254.7	132.2	51.9
1973	278.9	144.5	51.8
1974	279.6	142.1	50.8
1975	321.9	164.2	51.0
1976	326.2	161.0	49.4
1977	372.8	185.2	49.7
1978 [2]	423.1	183.4	43.4
1979	459.1	202.9	44.2
1980	499.2	215.6	43.2
1981	517.8	223.2	43.1
1982	557.8	248.4	44.5

[1] 1970 figures are in 1957 prices, 1971–1980 figures are in 1970 prices, and 1981–1982 figures are in 1980 prices.

[2] The definition of "large and medium" was reportedly altered in 1978. No details were provided.

Source: Zhongguo Tongji Nianjian (Chinese Statistical Yearbook), 1983, p. 215.

TABLE 3.—STRUCTURE OF INDUSTRY BY OWNERSHIP (1980)

	State	Collective
Number of enterprises (thousands)	83.4	290
(Percent of total)	(22)	(78)
Output value (billions yuan)	392.84	103.44
(Percent of total)	(78.7)	(20.7)
Productive assets (billions yuan)	346.5	38.5
(Percent of total)	(90)	(10)
Employment (millions)	32.46	14.28
(Percent of total)	(69)	(31)

Source: TJNJ 1983, pp. 126, 134, 213, 215. The estimate for productive assets in collective sector came from Xiandai Zhongguo Jingji Shidian (The Handbook of Contemporary Chinese Economic Affairs), p. 324.

TABLE 4.—BREAKDOWN OF GROSS VALUE OF INDUSTRIAL OUTPUT BY OWNERSHIP (PERCENT)

Year	State	Collective	Commune	Urban collective
1949	76.5	23.5		
1950	72.9	27.1		
1951	75.9	24.1		
1952	76.2	23.8		
1953	76.9	23.1		
1954	76.8	23.2		
1955	77.6	22.4		
1956	81.8	18.2		
1957	80.1	19.9		
1958	89.2	10.8		
1959	88.6	11.4		
1960	90.6	9.4		
1961	88.5	11.5		
1962	87.8	12.2		
1963	89.3	10.7		
1964	89.5	10.5		
1965	90.1	9.9		
1966	90.2	9.8		
1967	88.5	11.5		
1968	88.4	11.6		
1969	88.7	11.3		
1970	89.0	11.0	1.1	9.9
1971	87.3	12.7	1.6	11.1
1972	86.5	13.5	1.8	11.7
1973	85.6	14.4	2.0	12.6
1974	84.2	15.8	2.4	13.4
1975	83.2	16.8	2.7	14.1
1976	81.2	18.8	3.8	15.0
1977	80.1	19.9	4.7	15.2
1978	80.8	19.2	5.0	14.2
1979	81.0	19.0	5.1	13.9
1980	78.7	21.3	5.6	15.7
1981	78.3	21.7	6.2	15.5
1982	77.8	22.2	6.4	15.8

Source: Derived from TJNJ 1983, pp. 214–215. 1949–1956 weights are according 1952 prices; 1957–1970 are according to 1957 prices; 1971–1980 are according to 1970 prices, and 1981–1982 are in 1980 prices.

TABLE 5.—ANNUAL INDUSTRIAL GROWTH RATES (PERCENT) BY OWNERSHIP

	State	Collective
First 5-year plan (1952–57)	19.2	13.7
1958–62	5.7	NA
1963–65	18.7	10.0
Fourth FYP (1966–70)	8.2	14.1
Fifth FYP (1971–75)	9.1	16.8
Sixth FYP (1976–80)	9.2	13.9
1981	4.1	9.4
1982	7.7	9.5

Source: Derived from TJNJ 1983, pp. 214–215.

TABLE 6.—COLLECTIVE ENTERPRISES BY TYPE (1978)

	Number of enterprises	Output value (billions Y)	(Percent GVIO)
Total	264,000	81.44	(19.3)
Urban	100,000	60.25	(14.2)
In second light industry system	35,600	29.53	(7.0)

TABLE 6.—COLLECTIVE ENTERPRISES BY TYPE (1978)—Continued

	Number of enterprises	Output value (billions Y)	(Percent GVIO)
In light industry system excl. second light	23,700	6.33	(1.5)
All others (residual)	40,700	24.39	(5.8)
In textile ministry	(6000)		
In food and commerce systems	(10,000)		
Rural (commune only)	164,000	21.19	(5.0)

Source: Zhou Xiandong, "The Structure of Handicraft Industry", in Ma Hong and Sun Shangquing, eds., Zhongguo Jingji Jiegou Wenti Yanjin (Research on the issues of China's Economic Structure), (Beijing, 1981), p. 180. TJNJ 1983, pp. 213, 215.

TABLE 7.—NUMBER OF MATERIALS UNDER PLANNED ALLOCATION

	Materials under State Planning Commission (category I)	Materials under Ind. Ministries (category II)	Total
1953[1]	112	115	227
1957[2]	231	301	532
1958			132
1959[1]	67	218	285
1960			432
1963[1]	256	260	516
1964[3]	370	222	592
1965			579
1971			217
1972			226
1978			210
1979[4]			64
1980[4]			64
1981[1]	256	581	837

[1] Shidian, pp. 312-313.

[2] Liu Guoguang and Wang Ruisun, Zhongguo de Jingji Tizhi Gaige (The Reform of China's Economic System), pp. 4-8.

[3] Zhang Shushan, "Some Views about Reforms in Commodity Controls" Jingji Guanli (Economic Management) (JJGL), 1979.8, translated in JPRS Economic Affairs 34, p. 16.

[4] Sun Xuewen, "During the Readjustment Period Reform Must Still be Implemented", JJGL 1981.2, p. 7.

TABLE 8.--PORTIONS OF KEY MATERIALS UNDER LOCAL ALLOCATION (AS PERCENT OF TOTAL OUTPUT)

	1965	1978	1980	1982
Coal	25	46	46	49
Steel	5	20	42	47
Lumber	37	19	18	43
Cement	29	64	71	75
Machine tools		65		
Motor vehicles		25		

Sources: 1965, 1982: Li Kaixin, "Concentrate Materials to Ensure Keypoint Construction", Hongqi (Red Flag) 1983.17, p. 16. 1978: Yu Xiaogu, "Implement the Merger of Planned and Market Adjustment to Liven up Material Circulation", JJGL 1980.2, p. 4. 1980: Li Kaixin, "Management of China's Materials and Resources", 1981 Zhongguo Jingji Nianjian (1981 Almanac of China's Economy), IV-124.

FINANCE AND PLANNING REFORMS IN INDUSTRY

By Barry Naughton*

CONTENTS

Page
I. Introduction 604
II. Financial Reforms 606
    A. A Financially Decentralized System 606
    B. Profit Retention and Bank Loans 607
    C. Financial Recentralization 609
    D. Converting Profit Into Tax 611
III. Financial Institutions Outside the Factory 613
    A. Banks in Planned Economies 613
    B. Growth of Financial Intermediaries 615
IV. Planning and Marketing 618
    A. The "Market Fringe" 618
    B. A Tripartite Classification 619
    C. Central Planning as Seen From Beijing 620
    D. The Market and Guidance Planning in Practice 622
    E. Assessing the Significance of Planning Reforms 625
V. Price Reforms 625
VI. Conclusion 627

I. INTRODUCTION

On October 20, 1984, the Chinese Communist Party Central Committee issued a major policy document on economic reform, focused on reform of the industrial management system. This document marks the emergence, at least temporarily, of a consensus among the top leadership on the need to push ahead with economic reforms, and to clarify and reinvigorate the commitment to reform. Many changes have occurred in Chinese industry since 1978, but these changes have been fragmentary and sometimes inconsistent, and the top leadership has frequently insisted that reform objectives should be subordinate to other economic priorities. In October, for the first time, the leadership declared that conditions were ripe for systematic reform of the industrial system, effectively making economic reform the top priority of China's leadership.

However, the commitment to systematic reform of the industrial system should not be taken to mean that the Chinese now have a detailed reform blueprint. No specific vision of China's reformed industrial system has ever been articulated by China's leadership, and the October document is primarily an assertion of principles, with few concrete proposals. But while it is impossible to see clearly the ultimate destination of China's reform process, it is possible to discern the next stage of the journey: a distinctive Chinese strategy of reform has begun to emerge. This strategy envisions an incremental process of reform in which market forces are allowed to exert progressively more influence on enterprise decision-making, thus "squeezing" the administered economy into new patterns. In its most extreme form, this strategy will compel the industrial economy to gradually "grow out of" the plan, while planners use the transition period to gain experience in the techniques of controlling the economy through indirect means.

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Because there is no grand design to China's reforms to which we can appeal, we must plunge directly into the details of the changes which have been occurring in China's industry during the past several years. The recent reform initiative has been improvised on the basis of the specific changes—and the reactions provoked by them—in recent years. The description of China's industrial reforms that follows will make sense only if we recognize that the Chinese economic system, even before the inception of reform, was not a tightly controlled, highly centralized system. Although the Chinese copied the characteristic institutions of the Soviet-style centrally planned economy, the actual operation of the Chinese system, since at least the early 1970s, has been characterized by a substantial dispersion of power over material and financial resources, and often tenuous central control over the operation of the system.[1] For the past several years, the Chinese have struggled simultaneously to "enliven" the economy with reform measures, and to establish enough control over that economy to accomplish their most basic objectives. This experience has clearly shown China's central planners the limits of their effective control:

> We must be realistic and admit that for a long time to come, our national economic plans on the whole can only be rough and elastic and that we can do no more than, by striking an overall balance in planning, and through regulation by economic means, exercise effective control over major issues while allowing flexibility on minor ones.[2]

This quotation encapsulates the concerns and approach of central planners during the past two years. Recognizing that their ability to design and implement an ideal industrial management system is strictly limited, central planners have contented themselves with defining a direction of change, while stressing a limited number of central priorities which must be carried out.

The following sections describe the changes that have taken place in the industrial financial system, and in the system of planning, marketing and pricing. Throughout the focus is on the predominantly urban, state-owned industrial system. Through the welter of detail it is possible to discern three distinct sub-periods since the initiation of reform policies in December 1978.[3] Throughout 1979 and 1980, reform initiatives proliferated, developing momentum as time progressed. In nearly all respects, these early reforms tended to reduce central control over the industrial economy even below the relatively low pre-reform levels. By December 1980, central planners, alarmed by the failure to control decentralized investment, and by a surge in inflationary pressures, brought an abrupt end to the first period of infatuation with reform. During 1981 and 1982, reform rhetoric was drastically curtailed and no major new reform initiatives were launched in industry. Throughout this second period, Beijing stressed the primacy of the planned economy and the necessity for reform to be subordinate to "readjustment," i.e., to the changes in the structure of output which planners were attempting to implement. Remarkably, all the stress on planning did not improve Beijing's control over the economy: despite the de-emphasis of reform, central government control continued to erode, and Beijing's priority emphasis on energy and transportation development was severely threatened. After the 12th Party Congress, in September 1982, a new emphasis began to emerge, and a set of new policies were introduced at the beginning of 1983. A third period was begun which combines further reforms with a stragegic re-centralization of the economy. During this period, which has continued through the present, the center has enhanced its control over a portion of financial and material resources, giving it better prospects of carrying out its priority investment program. On the basis of the improved outlook in this respect, reforms in other areas have been accelerated. This mix of policies is the basis of the October reform document and the primary focus of the following essay.

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[1] This theme has been the focus of much recent work on the Chinese economy. See, in particular, Christine Wong, "Local Self-Reliance and Decentralization: the Maoist Legacy and Prospects for Reform in Chinese Industry," in Elizabeth Perry and Christine Wong, eds., *The Political Economy of Reform in Post-Mao China* (Cambridge, Mass.: Harvard Contemporary China Series #2, 1985).

[2] "Decision of the Central Committee of the Communist Party of China on Reform of the Economic Structure," (Beijing: Foreign Languages Press, 1984), p. 14.

[3] A more detailed, chronological account of these sub-periods is available in Barry Naughton, "False Starts and Second Wind: Financial Reforms in China's Industry," in Perry and Wong, eds., *Political Economy* . . .

II. Financial Reforms

A. A FINANCIALLY DECENTRALIZED SYSTEM

Before the beginning of reforms in 1978, most Chinese factories turned over all their profits to central or local budgetary authorities. In this respect, China was an extreme version of the Soviet-type economic system, for in the Soviet-type system, although enterprise autonomy is severely restricted, enterprises are at least allowed to draw modest incentive funds from the profits they generate. But while they had no control over their profits, Chinese factories were not without financial resources altogether. During the "Cultural Revolution decade," [illegible] 1967-76, enterprises and the local government units which controlled them gained control over a variety of funding sources. [illegible] funding sources were assigned to localities and ent[illegible] of some administrative rule and not on the [illegible] efficiency, as would have been the case with [illegible] profits.

The most important [illegible] was the retention of depreciation allowances [illegible] sum of money which is set aside to compensate for [illegible] factory's fixed assets are declining in value over the [illegible] they are worn down by continued use. In the standard Soviet-type system, these sums are remitted to the budgetary authorities, where they serve as an important funding source for new investment, which is in turn allocated by central planners. By 1971, Chinese factories and their supervisory bodies were retaining nearly all depreciation allowances, and this amounted to a very large sum, increasing gradually to about 13 billion yuan in 1977. Since most factories could rely on a separate "major repairs" fund to keep their existing assets functional, most depreciation funds were channelled into new fixed investment.[4]

Several other programs swelled the volume of decentralized finance. Beginning in 1972, county-level industrial systems were allowed to retain 60% of the profits of newly established factories.[5] The budgetary system, although in a state of constant change, regularly made some sort of provision for stand-by or reserve funds for local governments which they could use "off budget," and which regularly went into industrial investment. Many local agencies—particularly those involved in highway construction and urban utilities—were able to accumulate substantial funds from user's fees which also funded new investment.[6] All of these funding sources were completely outside the direct control of central planners in Beijing.

We can get a fairly clear picture of the over-all level of financial decentralization in China by examining the funding sources for fixed investment in the state-owned economy. These figures are given in Table 1, which consolidates data for capital construction with that for investment in "technical renovation" (*gengxin gaizao*). Since the boundary between these two categories of investment has shifted constantly over the years, and has never been logically consistent, we must combine the two types of investment in order to make any systematic statement about investment funding or uses.[7] When we do so, we see that a large proportion of total fixed investment has been funded through locally retained funds, which accounted for a third of total fixed investment in the early 1970s, and increased to nearly 40% in 1977. No other Soviet-style economic system displayed such a low proportion of budgetary finance of investment prior to the institution of major reforms.

B. PROFIT RETENTION AND BANK LOANS

Although enterprises in pre-reform China disposed of substantial sums of money, they had little or no incentive to improve performance or economize on production outlays, for they had no direct interest in the profitability of their operation. In order to change this situation, Chinese leaders reinstituted incentive funds in 1978, and introduced a profit-sharing plan the following year. This program, which spread rapidly through 1980, basically rested on the establishment, for each enterprise, of a percentage of total profits (or increased profits) which could be kept by the enterprise and used for worker bonuses, or other benefits.[8] From mid-1981, the focus shifted to "profit-and-loss contracting" (*yingkui baogan*), in which enterprises agreed to remit a certain absolute quantity of profit to the budget, and were in turn authorized to keep a very high proportion (typically 40% or more) of profit realized above this sum. These systems vary substantially in the way in which they calculate the sum of profits to be retained, but in all of them the amount of profit an enterprise is to retain is determined individually for each enterprise on the basis of discussions between the enterprise and its supervisory body. Once set, the rule for sharing the profits should not, of course, be altered. In practice, since each supervisory body typically had a paternalistic interest in its subordinate enterprises, profit sharing regulations were drawn up in such a way as to allow each enterprise to retain a "fair" sum of profit, and enterprises which ran into difficulties frequently found that special circumstances could be invoked to justify a more generous profit sharing arrangement. As a result, nearly all enterprises retained substantial profits, and a large portion of budgetary revenues slipped out of the control of central planners. By 1981-2, industrial enterprises were holding on to about 15% of their profits; if we include the less profitable commerce and construction enterprises in our calculations, by 1981, enterprises were retaining fully 24% of total realized profits.[9]

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[4] This financial system is described in more detail in Barry Naughton, "The Decline of Central Control over Investment in Post-Mao China," in M.D. Lampton, ed., *Policy Implementation in Post-Mao China*, (Berkeley: University of California Press, forthcoming).

[5] Vivienne Shue, "Beyond the Budget: Finance Organization and Reform in a Chinese County," *Modern China* X:2 (April 1984), p. 161.

[6] Xing Hua, "Multiple Changes in the Fiscal System During the Ten Years of Chaos," (Parts 1 & 2), *Caizheng* #8 (1983), pp. 22-4; #9 (1983), pp. 8-10; Huang Weishao, "A Cursory Discussion of the Management of Extra-budgetary Funds," *Jingji Wenti Tansuo* #5 (1982), p. 15.

[7] It is important to keep in mind that Chinese investment data for "technical renovation" is arranged by funding source, and not by the uses to which investment funds were actually put. Only a small portion of "technical renovation" investment is actually used for the renovation of existing fixed assets.

While profit retention programs were proliferating, bank lending for fixed investment was also growing rapidly. While modest lending programs for fixed investment had actually been going on since 1964, large-scale lending began in 1979. These programs were favored by the leadership not only because the payback and interest provisions were thought to improve the incentives facing individual enterprises, but also because they were a practical method for directing investment rapidly into production of light industrial consumer goods. Investment lending by the People's Bank of China surpassed 5 billion yuan in 1980 and 1981, and then jumped to over 9 billion in 1982.[10] With profit retention and bank lending swelling the volume of decentralized investment, central budgetary control of the investment process eroded steadily: by 1982, budgetary investment accounted for only 36.6% of total fixed investment (see Table 1), and central planners began to express genuine alarm at the decline in central control.

The large volume of profit retained by enterprises—about 17 billion *yuan* in 1982—quickly boosted worker living standards by funding bonuses and, above all, funding the surge in housing construction so apparent in today's China. But profit retention programs were not successful in their primary aim of dramatically improving the efficiency of enterprise operation. In practice, the profit retention programs did not discriminate effectively between well and poorly run factories. Given the close and generally paternalistic relations between individual factories and their supervisory bodies, everyone involved in the program had an interest in providing generous fund retention ratios. Moreover, whenever an enterprise fell short of its targets, it could appeal for special treatment on the grounds of unrealistic prices, major price changes or, above all, large-scale macroeconomic changes beyond its control (particularly in 1981). Such appeals were practically guaranteed a sympathetic hearing: enterprises became "responsible for profits, but not for losses."[11]

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[8] See Bruce Reynolds, "Reform in Chinese Industrial Management: An Empirical Report," in *China Under the Four Modernizations* (Washington, D.C.: Government Printing Office, 1982); and Naughton, "False Starts . . ."

[9] Figures cited from Fujimoto Akira, *JETRO China Newsletter* #45 (1983), p. 5.

[10] *1983 Baike Nianjian*, pp. 305, 308; *1982 Jingji Nianjian* (hereafter *JJNJ*), p. V-328. Simultaneously fixed investment loans from the Construction Bank and the Bank of China were also expanding rapidly. The figures for bank lending given in Table II combine figures from these three lending institutions.

Measured by the criterion of total profitability, the performance of Chinese industry has actually been deteriorating: since 1979, the total return of profit and tax per unit of capital, or per sales volume has declined slightly, but steadily, in each successive year.[12] It is true that much of this decline is the result of increases in wages and raw material prices, and that the data are consistent with a modest improvement in efficiency *per se.*[13] What is undeniable is that improvements in efficiency, if they exist at all, have fallen far short of the expectations of Chinese planners. In a sense, by the end of 1982 Chinese planners had the worst of two worlds. While they had surrendered direct control over a substantial portion of revenues, they had not reaped the dramatic improvements in efficiency which they had hoped would provide a greatly expanded total surplus. Their response was to push through a partial recentralization of finances while at the same time—and after some hesitation—pushing forward with further reforms.

C. FINANCIAL RECENTRALIZATION

At the beginning of 1983, a special "energy-transport fund" was levied on all outside-of-budget funds. Rather than tamper with any of the individual programs providing decentralized funding, planners simply levied a 10% tax on *all* such funds. In so doing, planners underestimated the liquidity of local enterprises and governments: these agents had in fact been carrying funds over from year to year, looking for opportunities to spend them. While a 10% tax could increase central government budgetary revenues, it was insufficient to restrain the volume of local expenditures. During the first half of 1983, local investment continued to surge forward.

At the end of June, the government began to take further drastic measures. On the financial side, the 10% levy was raised to 15%, and besides this tax on funds when they were drawn, an additional 10% construction tax was imposed on capital construction projects carried on outside the plan. Moreover, the government imposed the additional requirement that new construction projects could not be eligible for working capital loans from the banks until they had themselves provided at least 30% of the working capital needs from their own funding sources. Put together, these provisions reduced the effective financial resources available to fund decentralized investment by about 30%.[14]

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[11] Sun Xuewen, "We Must Correctly Carry Out Enterprise Responsibility Systems," *Caimao Jingji* 2(1982)30–34.

[12] *1984 Tongji Nianjian* (hereafter *TJNJ*), p. 263.

[13] See William Byrd, "Enterprise-Level Reforms in Chinese State-Owned Industry," *American Economic Review* 73:2 (May 1983), p. 331.

In addition to purely financial measures, the government greatly intensified its administrative control over the investment process. At the end of June 1983, a special national conference was called, and provincial governors and central ministers were made personally responsible for the reduction in the total volume of capital construction in their respective areas. It was made clear that this task occupied a primary place in the evaluation of each local leader, and party discipline was invoked to underline the importance of the task. Following this national conference, provincial conferences were held across the nation which eliminated projects and reduced the volume of capital construction spending in each area.[15] Simultaneously, the Bank of Construction, which is responsible for overseeing investment spending, was given additional supervisory powers over disbursement of locally controlled funds.

This combination of financial and administrative recentralization was successful. The "energy-transport fund" raised 9.3 billion yuan, accounting for about 80% of the increase in budgetary revenues in 1983. For the first time in five years, the proportion of fixed investment funded through the budget increased, pushing back above 40% (see Table 1). Since the dispersion of investment funding had actually increased during the first half of the year, the recentralization of the second half of the year must have been even more substantial. In addition, although figures for 1984 are not available as of this writing, it is clear that the major outlines of 1983 policy have been retained, and the degree of central control should remain approximately constant. This recentralization allowed the proportion of investment devoted to energy and transportation construction to take a substantial leap upward, after several years of decline.

Since the financial and administrative aspects of the recentralization were carried out simultaneously, it is impossible to determine which of the two was primarily responsible for the successful concentration of investment resources. Clearly the volume of locally retained funds had grown to far exceed the supply of materials available for investment at constant prices, so that administrative means were required to ration materials, ensuring progress on priority projects. In this situation, a financial recentralization was a prerequisite to further relaxation of rationing, but at the same time rationing would remain the most effective short-term way to produce results. However, it should be noted that most of the extraordinary administrative measures to control investment were limited to "capital construction", with projects classified as "technical renovation" exempt from most of these controls, as well as from the 10% construction tax. In this situation, we naturally expect locally controlled funding to be diverted towards technical renovation investment. In spite of this effect, technical renovation investment increased by a *relatively* modest 23% in 1983, compared to 29% in 1982, indicating that the reduction in financial resources had an important impact on investment independent of the extraordinary administrative regulations and the invocation of party discipline.

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[14] *1984 JJNJ*, p. IV-43; see also the unsigned articles in *Caizheng* 10 (1983), p. 15; 11 (1983), pp. 18, 31.

[15] *Renmin Ribao*, September 18, 1983, p. 2, lists nine such provincial conferences underway at that time; see also *1984 JJNJ*, p. IV-28.

D. CONVERTING PROFIT INTO TAX

During 1983, China began the implementation of a new financial system which is designed to apply to all state-run enterprises. This system is commonly called the "tax-for-profit" system, since it envisions the re-classification of most industrial profits as tax revenues. The purpose is to improve the incentive environment facing factories by linking taxes to various kinds of resources use (thus "charging" the enterprise for previously costless consumption), while simultaneously allowing enterprises to be the residual claimant of net revenues. In addition to these ultimate goals, the program provides the immediate benefit of being a temporary substitute for comprehensive price reforms, in that various kinds of sales or product taxes can be used to adjust for price distorations.

Under the Chinese system, "profit" is an accounting category which includes large sums of money which would not be classified as profits in a capitalist economy. Factories typically pay no interest and little or no amortization on fixed capital investments provided from the state budget; very low or zero interest rates on working capital; and no rent on land. All these charges are, in a sense, "owed" to the state. However, rather than being paid separately, they are simply lumped together as part of "profit" and remitted to the state budget. In the Soviet Union, this volume of profit was traditionally reduced by setting very high turnover (product) taxes which accounted for most budgetary revenues: profitability was low. In China, in contrast, taxes have generally been low, and profits high, with profits accounting for the bulk of budgetary revenues.

The tax for profit system will change this characteristic of the Chinese financial system. Total profit will be reduced as a series of taxes are levied on the enterprise, and the succession of taxes will change the real relative prices which enterprises face. In the proposed program, five types of taxes and deductions from profits can be identified.

1. Product taxes: differentiated according to products, but uniform nationwide, product taxes permit deviations between selling price and the revenue received by producers.
2. Income tax: calculated on a graduated scale for small enterprises, up to a maximum 55% rate for larger and more profitable enterprises.
3. Adjustment tax: an additional tax, figured as a percentage rate on profits after income tax has been paid, intended to equalize rates of profit retention when profitability differs for "objective" reasons.
4. Capital Use fees: charges for fixed and circulating capital.
5. Local taxes: taxes paid to local municipalities for land, housing, road use and urban services.

These taxes are to be phased-in during a multi-stage period of implementation.

The first stage of implementation, during 1983, simply involved the imposition of income tax on all enterprises. Then adjustment taxes were calculated in such a way that the actual percentage of profit retained was unchanged from 1982. This process clearly shows the nature of the adjustment tax: it is simply a continuation of earlier *ad hoc* measures of figuring profit retention, designed to ensure that enterprises are treated "fairly". Beginning in October 1984, the second stage of implementation got under way. The major innovation of second stage implementation was the imposition of substantial product taxes. According to calculation of the State Economic Commission in December 1984, the total amount of profit (according to the old definition) has been divided into four portions for 1985:[16]

	Percent
Product taxes	40
Income tax	33
Adjustment tax	12
Retained profit	15

It is not an accident that roughly the same proportion of profit is retained under the new system as under the old: the adjustment tax was calculated "backwards" in order to obtain this result. Neither capital charges nor local taxes are part of nation-wide implementation of the second stage of tax for profit, although some localities have begun implementing capital charges.

It is too early to fully evaluate the tax for profit system, but it can be seen that second-stage implementation is deficient in two areas. The first deficiency is due to the continuing importance of the adjustment tax. Adjustment tax rates are supposed to be fixed for a period of five years, throughout the 7th Five Year Plan; nevertheless, since the rates are based more on historical accident than any objective factors, they clearly provide a focus for continued bargaining between enterprises and their supervisory bodies, and a cushion between the enterprise's performance and financial rewards or penalties. The fact that the adjustment tax rates were calculated in order to "freeze" each enterprise's profit retention ratio shows that the primary benefit to the adjustment tax is political (assuring each enterprise that it will not automatically lose revenues under the new system), rather than economic (tying awards more rigorously and objectively to performance). However, small enterprises are not subject to the adjustment tax, and this simplification is a step forward. The price to the budget of this simplification is estimated to be around 3.5 billion *yuan.*[16a]

The second deficiency is the failure to move ahead with nationwide implementation of fees for fixed capital use.[17] It remains true that one of the greatest price irrationalities in China is the continued costless occupation of billions of *yuan* worth of fixed capital by state-run exterprises. The failure to charge for fixed capital means that enterprises have little or no incentive to economize on fixed capital, and that large capital-intensive enterprises appear to be profitable when they may actually be failing to return minimal profits. While other parts of China's reform program move rapidly ahead, China is in this respect behind the other socialist countries, nearly all of which have long had some kind of capital use charges. China's price reform cannot begin to be successful until this most basic underlying irrationality is addressed.

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[16] Li Jisen, Deputy Director, Bureau of Enterprise Management, State Economic Commission, briefing, Beijing, December 1, 1984.

[16a] According to Finance Minister Wang Bingqian, quoted in *China Daily*, December 13, 1984, p. 1.

[17] Implementation has been proceeding in different regions, with Shanghai the apparent leader. See Cong Zhi, "Implement Compensated Use of Capital, Raising Its Efficiency," *Caizheng* 2(1982)12, and the discussion in Naughton, "False Starts. . . .". Chinese planners in December 1984 stressed their determination to move ahead with implementation of capital charges.

There is a clear relationship between the survival of the adjustment tax and the failure to implement capital charges. Chinese reformers face a crucial dilemma, because the profitability of factories varies greatly between geographical regions, with factories in the eastern coastal areas turning in high rates of profit, and inland factories producing little profit. Uniform national fixed capital charges at even modest levels would cause many inland factories to operate at a loss, even while coastal industries were greatly expanding their retained profits. Since planners are unwilling to penalize inland areas to the extent that a completely even-handed financial program would imply, they have no choice but to impose some kind of differentiated tax. It would be better, from an economic point of view, to apply capital taxes at differentiated rates, even if this meant merely nominal capital taxes for inland areas. However, Chinese planners have adopted the simpler solution of using the adjustment tax, the burden of which falls predominantly on the coastal areas.

III. FINANCIAL INSTITUTIONS OUTSIDE THE FACTORY

A. BANKS IN PLANNED ECONOMIES

During the past several years, China has rebuilt its financial institutions and undertaken major reforms in an attempt to create a financial system that can support and enhance the reforms taking place in industry. Banks have begun large-scale lending for fixed investment projects, and interest rates have been raised in an effort to make bank credit more expensive to the factory. New programs have been created which resemble those found in market economies: investment companies now channel scattered savings into productive investments, and banks in some areas engage in the discounting of commercial bills of credit. The expressed determination of China's planners to use "economic levers" to manage the economy leads us to expect that financial institutions will continue to innovate and grow in importance in the years ahead.

The above mentioned changes certainly represent substantial departures from the standard model of the Soviet-style centrally planned economy (CPE), as that is generally described. In the classic CPE, financial institutions play no significant role in determining resource allocation, and are instead limited to playing a control function. The "mono-bank" monitors enterprise compliance with plan directives through its control over enterprise outlays, which must be channelled through the bank and are authorized only when they are in conformity with the central plan. Of central importance in this system is the fact that the enterprise has no independent financial resources: each source of finance has already been designated for a particular use.[18]

It should be clear from the description in preceding sections, though, that China's financial system did not conform to this model even before the initiation of reforms. On the one hand, enterprises and their supervisory bodies possessed financial resources which were not earmarked for any specific use by central planners. On the other hand, due to the depredations of the Cultural Revolution, the ability of the People's Bank of China to effectively monitor enterprise activity was drastically reduced. The work of setting detailed quotas for various kinds of loans, a central part of bank work in most CPEs, fell by the wayside; enterprises stopped compiling detailed expenditure plans for the Bank's inspection.[19] Bank supervision was reduced to efforts to prevent corruption, and the economic potential of the banks was neglected.

In this situation, financial resources were assigned to various enterprises and localities in accordance with simple administrative rules, and tended to "precipitate" in small deposits not easily transferred from one unit to another. Factories which retained funds had few alternatives to self-investment. Funds could be deposited in the bank, but they earned a return of only 1.8% annually. As a result, the opportunity cost of self-investment was extremely low, and there were no mechanisms for comparing the economic returns available from different uses of funds. Investment of these funds was thus not coordinated by any economic mechanism, such as interest rates, nor was it coordinated by planners. Instead, local industrial systems held funds in small, discrete units, as a result of which there was a built-in bias toward small-scale technologies and investment. Low-technology industrial systems were encouraged by this financial system, and indeed proliferated in 1970s China: simple machine tools, inefficient low-pressure industrial boilers, and simple technologies for production of cement, fertilizer and iron spread throughout China in a period when modern facilities had to reduce production due to energy shortages.[20]

Not all of this activity was economically irrational. Some kinds of small scale production used dispersed local resources (small coal mines are an excellent example) and labor intensive production methods. However, it was difficult to find economic criteria which could discriminate between efficient and inefficient projects. Moreover, some of the same tendencies which are at work in all CPEs became particularly severe in China due to the absence of financial checks and balances: in particular, the desire to attain as high a degree of self-sufficiency as possible, stimulated by the constant threat of supply interruptions, led to the duplicate construction of relatively self-sufficient industrial systems in many localities.

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[18] A comprehensive description of the institutional structure of China's banking system, and the initial stages of reform, is provided in William Byrd, *China's Financial System: The Changing Role of Banks*, (Boulder, Colorado: Westview, 1983). The classic description of the Soviet banking system is George Garvey, *Money, Banking, and Credit in Eastern Europe*, (New York: Federal Reserve Bank of New York, 1966).

[19] Li Yun'an, *Zhengzhou Daxue Xuebao* 4(1980), reprinted in *Renmin Daxue Fuyin Baokan Ziliao*, series on Planning and the National Economy, #2 (1981).

[20] Zhou Shulian *et al*, *Shehuizhuyi Jingji Jianshe he Makeszzhuyi Zhengzhi Jingjixue* (*Socialist Economic Construction and Marxist Political Economy*), (Beijing: China Social Sciences Publishing House, 1982), p. 133; Feng Shaozhou, "Reform Machinery Products in Order to Provide Advanced Machinery for Energy Exploitation and Conservation," *Gongye Jingji Guanl Congkan* #3 (1981), pp. 9-15.

Some innovative strategies were developed in the course of the 1970s to overcome the fragmented and inflexible distribution of funds. One of the most important involved a transformation of collective industry. Collective factories had originally been established in the 1950s by amalgamating individual handicraft workers into cooperative forms, and were legally owned by the assembled workers. During the course of the 1970s, however, new collective factories were set up on the basis of investment from local governments and even state-run enterprises. In these cases, the collectives were "owned" by whatever unit had established them: although they continued to pay taxes to the state budget, the after-tax profits reverted to the unit which had provided the investment (rather than to the workers), becoming part of that unit's "extra-budgetary" funds. Many factories used this form to provide employment for the dependents of workers ("May 7th Factories"). Throughout the 1970s, collective industry grew more rapidly than state-owned industry: the flexibility which collective forms under institutional sponsorship offered was a major reason for this more rapid growth.[21] Another innovative strategy was the establishment of joint production between urban state-run factories and rural collective enterprises, based on "investment" by the urban factory. These forms were especially important in the Shanghai-Jiangsu area.[22]

These innovative strategies are unique within the context of the CPE model, but their overall importance was fairly limited before 1978. There was no legal concept of ownership to protect investments, and many of these strategies were designed in the first place to get around restrictions inherent in the planned economy, particularly restrictions on new hiring. But the presence of these unique forms of investment demonstrate that the most pressing need for reform of financial institutions grew not out of a need to expand the availability of financial resources, but rather from a need to channel resources which were already decentralized into economically rational investments. With the onset of reform, financial institutions were called upon to channel savings—in this case the savings of state-owned institutions—into productive investments, just as would be the case in a market economy. Not surprisingly, banks quickly came to play an important role in the allocation of investment.

B. GROWTH OF FINANCIAL INTERMEDIARIES

Since 1979, the People's Bank of China has begun to play a major role in loaning funds for fixed investment. At the same time, the Construction Bank, in addition to performing its primary function as a conduit for budgetary funds, has begun to make loans from deposits placed with it by construction enterprises and factories planning future investment projects. As indicated in Tables 1 and 2, such activities have expanded rapidly in recent years and now constitute one of the major sources of investment funding. Even the Bank of China, which is primarily responsible for handling foreign exchange transactions, made domestic currency loans of over a billion *yuan* in 1983, primarily for fixed investment.[23]

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[21] On the changing nature of collective enterprises see Ma Hong, chief editor, *Xiandai Zhongguo Jingji Shidian (Dictionary of Contemporary Chinese Economic Affairs)*, (Beijing: China Social Sciences Publishing House, 1982), pp. 68, 217-8.

[22] For examples, see Fei Xiaotong, "Prosperity Follows Industrial Development," *Beijing Review*, May 28, 1984, pp. 27-9; Li Qiaonian *et al.* "A Preliminary Exploration of Interregional Economic and Technical Cooperation," *Jingji Wenti Tansuo #5(1982), pp. 1-6, 14.*

Even more striking that the expanded role of banks has been the emergence of an entirely new institution, the Investment Trust company (ITC). ITCs receive deposits from enterprises, non-profit organizations, and even individuals, and use these to make a variety of loans. They are independent organizations under the supervision of local banks. The primary function of the ITCs is to channel funds retained by state organizations into alternate productive uses. In one survey of funds channeled to collective industry in Anhui province, state enterprises and organizations contributed 53% of the total capital; collective enterprises 24%; rural communes and teams 16% and individuals 8%.[24] Enterprises depositing funds in ITCs have two options: one is to make "general deposits," in which funds earn interest and no specific instruction are given as to the use of the funds: these account for two-thirds of the funds at the Shanghai ITC. The other option is to make "designated deposits," in which the ITC simply carried out the financial transactions involved in supporting some kind of joint project or designated beneficiary: these account for the remaining one-third of Shanghai funds.[25]

These ITCs disposed of over 2 billion *yuan* by the end of 1981, and appear to have grown substantially since. In Wuhan, for instance, an ITC was established only in October 1981, but in the following year provided 230 million yuan worth of fixed investment loans, accounting for 20% of total state investment in that city.[26] Thus, ITCs have emerged as an important conduit for investment funds in China. In some cases, joint investments are carried out without recourse to ITCs. The electric power ministry has been particularly active in carrying out joint ventures with localities, such as Shanghai. In these cases contracts are drawn up specifying the distribution of the power and profit produced by the project among the participants.[27]

A significant increase in interest rates has accompanied the growth of financial intermediaries. The People's Bank now provides time deposits for enterprises that can earn up to 5% for 5-year accounts. Interest rates at ITCs have been rising, as well. The early Tianjin ITC offered rates up to 3.6% for time deposits, but more recently the Foshan (Guangdong) ITC was reported to be offering a guaranteed return of 8.64% for one-year deposits, with an additional distribution of profits if investments were highly profitable.[28] The Wuhan ITC also offers a guaranteed return with an additional distribution based on profitability. This increase in interest rates is also available to individuals. Currently, individuals can invest in Treasury bonds (8%); shares in local ITCs; rural construction bonds in some areas; and of course, bank deposits, which now carry a maximum return for time deposits of 7.92%.[29]

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[23] *1984 JJNJ*, p. V-231.

[24] Yao Fangduo, "Independently Raise Funds, Develop the Urban Collective Economy," *Jingji Guanli* #3 (1983), pp. 18-20.

[25] Credit Division, Shanghai Branch of the People's Bank of China, "An Exploration of Bank Trust Work," *Zhongguo Jinrong* #9 (1983), p. 18.

[26] Hu Yonglan, "Wuhan City Financial Trust Company Issues 20 Million Yuan of Shares to the Public to Raise Funds for Local Economic Construction," *Hubei Riboo*, July 7, 1984, translated in *FBIS*, July 23, 1984, p. P-3.

[27] Joint venture investments between localities and the Electric Power Ministry totalled 1.4 billion *yuan* in 1983, and were expected to create nearly 10 million kilowatts of generating capacity. *1984 JJNJ*, pp. IV-10,69. See also Liu Lixin, "Several Suggestions for Raising Construction Funds," *Caizheng* #11 (1981), pp. 8-9.

The strengthened ownership rights and increased interest rates give enterprises alternate outlets for retained funds. The opportunity costs of continuously ploughing funds back into the original enterprise are thus raised, and some of the most inefficient forms of self-investment are discouraged. Certainly the economic system continues to create incentives to invest in the home enterprise regardless of social return: desire to become independent of possible supply interruptions, and the imperatives of "empire-building" within a still bureaucratic structure may impel enterprises to direct financial resources inward regardless of possible alternate returns. But enterprises now appear to be more willing to at least consider outside investments with higher paybacks, and almost certainly there has been an increased circulation of funds between different sectors of the state-owned economy. Certainly household funds have been attracted to the newly developed financial institutions in large amounts. Household saving in the form of treasury bonds and new bank deposits accounted for 14% of national net saving (accumulation) in 1982, compared to an average figure for 1971-5 of less than 2%. Moreover, these figures do not include household saving which flows into newly revived informal credit institutions which channel smaller blocks of capital into petty production and commerce. A recent description of these informal institutions makes clear their recent rapid expansion.[30]

The recent growth of financial intermediation by banks and ITCs has rapidly led to a financial deepening of the Chinese economy. However, these institutions perform only half of the task of financial intermediation as that is carried out in a market economy. Once funds are drawn into the banking system (including ITCs) by the promise of interest rates providing an acceptable rate of return, their further disposition is based on the bank's decision on how to allocate funds based on local plans and national priorities. Banks have significant discretion in many individual loaning decisions, but work closely with provincial and municipal planning commissions in deciding the general division of loanable funds between sectors. In these decisions, rates of return play little part, since continuing price distoritions would make such calculations meaningless in any case. On the other side, enterprises generate a continuous excess demand for loanable funds, since payback provisions tend to be extremely generous. A recent regulation has tightened payback requirements, by insisting that enterprises repay loans from their retained profits, rather than from pre-tax total profits, and this should have some beneficial effect.[31] However, given the rarity of bankruptcy and the ease with which an enterprise can be sheltered from misguided investment decisions through tax remission or adjustment of profit retention programs, it is unlikely that interest rates will equate supply and demand for loanable funds in the foreseeable future.

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[28] Byrd, *China's Financial System*, p. 82; Vigor Fung, "Chinese Snap up Corporate Shares," *Wall Street Journal*, July 19, 1984.

[29] The province of Shandong appears to have been particularly active in innovating with rural financial instruments, including hydropower bonds and a commune which issued stock to finance a new sake and soybean plan. See Kyodo report reprinted in *FBIS*, June 30, 1980, p. L-17.

[30] Li Zhenzhong and Ye Ming, "The Nature of Informal Credit and Appropriate Policy Responses," *Jianghan Luntan No. 11 (1983), pp. 15-17.* The description of informal credit institutions current in today's China given in this source corresponds closely with that provided for Chinese in Malaysia in Charles Gamba, "*Poverty and Some Socio-Economic Aspects of Hoarding, Saving and Borrowing in Malaya,*" *Malayan Economic Review* III:2 (October 1958), pp. 33-62. *1984 JJNJ*, p. IV-4 asserts that 500,000 rural enterprises are based on capital raised from among the rural population.

Thus, China's newly vibrant financial institutions should be thought of primarily as attracting dispersed funds into an organized financial sector from which they are disbursed according to administrative principles. Although economic means are used to attract funds, rationing according to plan must be relied upon to recycle the funds into the economy. It remains premature to talk of capital markets in China, unless we refer to the small-scale capital markets which exist among the populace, outside the formal financial system.

IV. Planning and Marketing

A. THE "MARKET FRINGE"

One of the most striking changes in China during recent years has been the growth of a marketized sector the economy alongside the planned sector. One type of "market fringe" has of course figured prominently in news stories about China's new economic policies. Individual entrepreneurs in China's cities—at first suburban peasants selling farm produce, but by the end of 1983 over 2 million private peddlers—have made life livelier and more conventient, and remain probably the most visible manifestation of China's economic reform. But this new element has made little difference to the organization of most of China's urban production: once ideological obstacles were cleared away, it was easy to permit a small-scale commerce sector, based on private enterprise, to exist alongside a large-scale state-owned industrial sector.

Far more important—and far less visible—is the fact that since 1979 state planners have allowed a "market fringe" to grow within the state-run industrial sector. Increasingly, factories have been allowed to engage in production and sales outside the state plan, and this freedom has been given legal sanction by the 10-point regulation on expanded enterprise autonomy, promulgated in May 1984.[32] Unlike the situation in small-scale commerce, permitting market operation within the state industrial sector calls into question the basic principles of the planned guidance of the economy and presents substantial problems of coordination between plan and market. Moreover, in at least one respect some state factories have more autonomy than petty traders operating at curbside stalls: while the prices charged for consumer goods at the retail level have remained strictly controlled, factories which sell producers' goods outside the plan have substantial freedom to alter prices.

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[31] Regulations are given in *Caizheng #7 (1982), p. 35; Caizheng #10 (1983), p. 15.*

[32] "Temporary Regulations of the State Council on Further Expanding the Autonomy of State-Run Industrial Enterprises," May 10, 1984, *Guowuyuan Gongbao* (State Council Bulletin) #10 (1984), pp. 323-4.

At the same time, discussion of these new freedoms remains complicated by the fact that each industrial enterprise is caught up in a complicated web of authority relations, and might be called on to justify its actions to a whole range of different administrative organs. Thus, it is often difficult to determine when an enterprise possesses "autonomy," and when its activity is "planned," and at what level. Indeed, activity which appears unplanned from Beijing may in fact be the outcome of plans painstakingly developed by provincial, municipal, or county authorities. We can hope for no more than a rough sense of how Chinese industrial markets interact with the planning process. In order to develop this sense, we should first consider the categories the Chinese themselves have advanced to explain the categories they hope new activities will fall into, then try to decide what these categories mean in practice.

B. A TRIPARTITE CLASSIFICATION

Chinese planners have begun dividing industrial production into three categories, depending upon the basis on which production is arranged. These three categories are:

1. Compulsory planning (*zhilingxing jihua*), Compulsory planning corresponds to the traditional model of planning in a CPE. Planners arrange 100% of the important inputs required for a certain type of output, and the factory turns over its output to the state at state-fixed prices. Such planning should be strict, with penalties for enterprises which fail to meet their plans.

2. Guidance planning (*zhidaoxing jihua*): In guidance planning, central planners send a general control figure to ministries and localities, which is then disaggregated by them to their subordinate ministries. The control figure is for information purposes only, and is not binding. However, on the basis of the control figure, planners allocate some important raw materials to the ministry of locality supervising production. There is no presumption that central planners will allocate *all* of the inputs needed for production, but they can be expected to provide at least a portion of the factory's fuel and power requirements. Sale of output is primarily arranged by the factory, although some of the output may be sold to the central government. Prices of producer goods may float in a range 20 percent on either side of the state fixed price, or other arrangements can be made between buyer and seller; consumer goods are to be sold at the state price.

3. Market sales: The state provides none of the inputs, and sale of output is arranged entirely by the factory, with the same price regulations theoretically applying as in the case of guidance planning. A few thousand small products—shoelaces, matches, and the like—are entirely sold on the market, and at uncontrolled prices. More often, market sales are carried out either by a small factory outside the scope of planning (though its output would be entered into the plan if produced by a larger factory), or by a large factory

selling output it had produced on the basis of inputs procured itself, without direct state allocations.[33]

The October reform document states that the scope of compulsory planning will be gradually reduced, while that of guidance planning and market operation will be extended. To understand what this means in practice, we should examine the planning framework as seen from Beijing.

C. CENTRAL PLANNING AS SEEN FROM BEIJING

Since at least the early 1970s, there has existed a two-tier planning system in which central planners in Beijing have directly allocated only a relatively small proportion of total industrial output. Two convenient summary indicators can give us an idea of how limited Beijing's direct allocational power is. First, planners have allocated only a small number of separate commodities: at a maximum, around 600 materials were allocated, and more recently planners have claimed that 256 separate commodities made up the category of materials allocated by the Planning Commission and Material Supply Bureau. By contrast, in the Soviet Union 60,000 different commodities are directly allocated from Moscow. Second, even among commodities which fall into the centrally allocated category, the center actually allocates only a portion of total output. For example, in recent years central planners have directly allocated about 50% of the coal produced, and 25% of cement. (Some figures relating to central government control are presented in Table 3). In general, central planners directly allocate the output of relatively small number of large-scale enterprises, while the output of smaller factories is directly controlled by provinces, municipalities and counties.[34] For instance, in 1980 the center controlled the output of 49 large and medium-sized cement factories, while localities controlled about 5,000 small factories.[35] Centrally allocated materials go to support central priorities in investment and production, but are also allocated to localities to aid them in their productive efforts.

This system is actually a multi-tiered system, in the sense that there are several "local" levels of the planning apparatus—province, city or prefecture, county—each of which might have control over a certain block of materials. However, from the standpoint of Beijing it is a two-tier system in which a centrally planned tier has been, and is, directly controlled by central ministries and the Planning and Economic Commissions. As far as Beijing is concerned, the locally planned portion of the economy has always been under a kind of "guidance" plan, in the sense that Beijing does not directly enforce implementation of this part of the plan, and this responsibility is left up to local authorities. (In the past, of course, local authorities were encouraged to view physical planning as the embodiment of socialism, whereas they are now urged to stress the

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[33] Some concrete details of this theoretical sketch of how the tripartite categorization of planning would function were provided by members of the State Economic Commission in Beijing briefings, December 1-4, 1984.

[34] See Wong, "Local Self-Reliance and Decentralization."

[35] Wang Jiurong et al, *Zhongguo Jianzhu Cailiao Nianjian 1981-2* (China Building Materials Yearbook), (Beijing, 1982), pp. 60-1.

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commodity nature of socialist production.) While it is difficult to make definitive statements about local or guidance planning, it is easy to make unambiguous assertions about the portion of the economy directly planned from Beijing. As a proportion of total output, that sector of the economy has been shrinking over the past five years and will continue to decline in importance in the next few years.

We can track the decline in the central portion of the economy with reference to either of our two indicators. Table 3 shows the decline in the proportion of a few key materials allocated from the center in recent years. This shows the effect of a generally more rapid growth of small-scale production during the past years. Even more striking has been the decline in the number of commodities allocated from the center. Although the number of commodities theoretically subject to central allocation has remained constant at 256 over the past several years, the number actually allocated has been declining steadily and has been substantially less than 256 since 1980. Less than 100 commodities were allocated for the 1984 plan, and even fewer were to be allocated for the 1985 plan. At the National Planning Conference in November 1984, when the major decisions on the 1985 plan were taken, only 27 commodities were allocated by the State Planning Commission and Material Supply Bureau, although it was expected that later additions would bring the total up to 50 or 60.[36]

The decline in the number of commodities directly allocated by the center is explainable by the change in the way in which machinery is distributed. Of the 256 commodities in the centrally planned category, 101 were raw materials and fuels and 155 were machinery (not including certain kinds of specialized machinery allocated by the ministries). During the years 1979–81, state investment plans underwent drastic cutbacks, and the structure of total investment shifted strongly towards construction (particularly housing construction) and away from the purchase and installation of machinery. In 1980, the output plan for machinery enterprises under the supervision of the First Ministry of Machine Building came to only half of the total capacity of those enterprises, and in 1981 the plan was reduced to only one quarter of total capacity. In 1981, machinery enterprises were able to arrange independently a volume of sales significantly greater than the production responsibilities assigned to them by the plan: in spite of this success, total production remained well below capacity.[37] In this situation of extreme excess capacity, there was naturally little need to allocate most types of machinery, and planners simply ceased allocating. Thus, even though central policy at this time (early 1981) stressed planning, in fact almost a hundred items dropped out of the central plan. Machinery production began to revive in 1982, but production remains below capacity for most items. In general, planners have not resumed allocation of machinery products, but have been content to allow individual producers to arrange their output on the basis of customer orders.

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[36] Ling Yuxun, Deputy Director, Material Supply Bureau, Beijing briefing, December 4, 1984. These figures do not include grain and other materials allocated by the Ministry of Commerce, or commodities allocated by individual production ministries.

[37] Yu Youhai, "Don't throw out the baby with the bathwater," *Gongye Jingji Guanli Congkan* 7 (1982) 12-16; *1981 JJNJ*, p. III-39.

Thus, in one sense, the scope of central government compulsory planning has been shrinking, as a proportion of industrial production, for the past several years, and the October reform document simply legitimizes and extends changes already in progress. Current plans are to generally fix the total amount of centrally planned commodities provided to other sectors of the economy at current levels. That is to say that central government supplies of steel, for instance, will be provided to ministries and localities in future years at approximately the same quantities as in the 1984 plan. As production expands in these sectors, they will have to find increased supplies of steel outside the state plan. These quantities are expected to apply throughout the 7th Five Year Plan (1986-90).[38] In this way there will be no great shocks to enterprises, such as would result if they were suddenly separated from allocated supplies altogether. However, as production expands, a larger and larger proportion of industrial production will take place outside the central allocation process. Industry will "grow out of the plan."

D. THE MARKET AND GUIDANCE PLANNING IN PRACTICE

From the preceding account of central planning, it should be clear that the Chinese experiment with guidance planning might mean nothing more than that the role of local planners will expand in relation to the role of planners in Beijing. The most obvious way for the current reform to fail would be for the guidance plan to become "the locality's compulsory plan,"[39] so that the enterprise's relation to its supervisory bodies did not change. While this is a very real danger in the current round of reforms, developments over the past few years suggest a slightly different pattern, in which planners exert control directly over a subset of enterprises, while greatly releasing their control over another subset. This emergent pattern can be seen in the division of enterprises between large and small, on the one hand, and in the division of industrial sectors between bottleneck sectors and those with excess capacity.

Generally speaking, the larger an enterprise is, the more tightly it is controlled. The largest enterprises, entered into the central government's allocation plan, do have a "market fringe," but this area of autonomous action is relatively restricted. Compulsory production plans have been reduced, in general, to around 80-85% of plant capacity.[40] In this situation, large plants can independently arrange sales of about 15% of their output, so long as they can independently arrange the raw materials and fuels needed. At the other end of the scale, small rural plants are frequently not included in allocation plans at any level. In between these extremes, medium-sized urban plants have an intermediate amount of autonomy, frequently having compulsory production plans that account for only a small proportion of their capacity. Looking simply at the amount of plant capacity which is left outside of compulsory plans, there is a rough continuum from the largest plants, with the smallest independent capacity, to the smallest plants, with the largest independent capacity. At the same time there is some indication that the plans given to the largest plants are more compulsory than those of smaller plants, in the sense that there is less room for revision in the course of the year. And finally, as noted in the section on financial reforms, smaller enterprises have more financial autonomy, since they are not subject to the adjustment tax.

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[38] Gui Shiyong, State Planning Commission Economic Research Institute, briefing, Beijing, December 5, 1984.

[39] This was the explanation of guidance planning given by an enterprise manager in Dalien on December 9, 1984. Members of the Dalien Economic Commission disagreed vigorously with this explanation.

[40] Xu Xiaojiu, "The Small Enterprises Enlivened, What About the Big Enterprises," *Jingji Guanli* #11 (1984), pp. 3-5.

At the same time, there is considerable variation between industrial sectors. Drastic changes in China's economic priorities, combined with problems accumulated from earlier periods, have resulted in severe sectoral imbalances. Generally speaking, supplies of energy, transportation, and building materials are well below effective demand, while output of machinery, and increasingly some types of consumer durables, is constrained by the level of demand. Not surprisingly, in this situation the attention of planners is focused on controlling bottleneck sectors, while output of sectors with surplus capacity can be handled by the market.

Indeed, one of the secondary motivations of the division of plans into compulsory and guidance plans is to stress the compulsory aspect of the traditional planning framework. This aspect of things was particularly stressed during the second half of 1983, when the obligation of large factories to fulfill their plans and not divert output to the market was particularly stressed. One such campaign was directed at cement production, and planners are now claiming success in this campaign: in 1981, the large centrally planned cement factories fulfilled less than 90% of their sales contracts, even though production equalled the planned level, but in 1983 a contract fulfillment rate of 99.2% was recorded.[41]

For producers' goods sectors, the variation in operational autonomy between different size enterprises, and in market conditions by sector, translates into different price conditions. (Prices of most consumer goods remain fairly tightly controlled). In bottleneck sectors, smaller factories are able to charge higher prices for their output. For example, in cement production, the largest factories sell their output at an average price of 45 yuan/ton, while the smallest sell for 75 yuan/ton, in spite of the fact that the output of the larger factories is of substantially higher quality.[42] Larger factories sell their outside of plan output for higher prices, but are effectively constrained to sell their in-plan output at the stateset price which is invariably lower for bottleneck sectors. It is true that state regulations stipulate that outside of plan output (of larger factories) can be sold at only 20% above state prices at most, but these restrictions are widely ignored in practice. Not only do planners find it impossible to control these non-regulated transactions, there are numerous loopholes in the regulations which permit various kinds of barter and side payments.[43] In sectors with excess capacity, market conditions exert downward pressure on prices, and the price of machinery has drifted downward during the past several years, with price cuts concentrated in 1980–1.

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[41] Yu Youhai, "Don't Throw Out the Baby,"; *1984 JJNJ*, p. IV-23.

[42] "A Survey of Technical and Economic Indices of Cement Production by Small Factories in 1981," *Shuini* (Cement) #10 (1982), pp. 19-21.

There has thus emerged a dual price system, with a distinctive pattern to prices. The largest price disparities can be expected in the field of fuel, and between the largest and smallest producers. This is precisely what we find, with large coal mines selling coal for about 25 yuan/ton, while small mines run by rural production collectives frequently charge over 100 yuan/ton in coal-poor regions of the country.

On the basis of this dual price structure, we can get a good idea of how guidance planning will work during the next several years. The central government continues to control a preponderance of energy supplies: it controls 50% of coal, but also the vast majority of electricity supplies, and nearly all petroleum products. Energy is in short supply, directly constraining the expansion of output, but these products are all sold at state-set prices which are well below market prices either in China or on international markets. The essence of guidance planning, then, is that central and local government organs offer factories a certain quantity of fuel and power at the state-set price, which is a subsidized price. Since most manufacturing and processing enterprises are operating below capacity, largely due to energy shortages, they will gladly accept state-allocated fuels and produce whatever is indicated by the authority which provides the fuel. As a result, there can only rarely be questions about the "compulsory" nature of guidance plans, for it will nearly always be in the factory's interests to carry out a guidance plan. Those factories which, for whatever reason, balk at carrying out a guidance plan can always be induced to do so by the combination of benefits and penalites which planners can bring to bear.

The reality of the tripartite division of plans is that the state exerts direct control over the bulk of energy resources, but allows independent development of small-scale energy resources. The dual price structure is then utilized by the state: planners' control of low-price energy supplies is used to influence production economy-wide and ensure that the center's priorities are carried out; the higher market price of energy draws small-scale financial and material resources into new energy production. In manufacturing sectors, the state effectively subsidizes those types of production which it wishes to support, while tolerating other forms of production which either require little energy, or are sufficiently profitable to support higher market prices of energy supplies. By stabilizing the quantity of the energy and raw material resources which it provides at the subsidized price, the state allows the marketized portion of the economy to grow as a proportion of total output. Downstream producers are gradually forced to use a greater proportion of higher-price market-supplied energy resources. In this way their costs are gradually "squeezed," exerting pressure on them to improve the efficiency of energy utilization, but without experiencing the shock of sudden termination of low-cost energy supplies.

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[43] Planners interviewed in December 1984 at both the central and municipal level repeatedly stressed their inability to control out-of-plan prices, and maintained that such prices are in fact set according to market demand.

E. ASSESSING THE SIGNIFICANCE OF PLANNING REFORMS

From the preceding, it is clear that there can be no unambiguous dividing line between the guidance plan and market production. Even if it were possible to make such a division for a given locality, practice varies too much from region to region to permit nationwide generalization. In principle, it should be possible to determine how much of industrial production is included in the central government compulsory plan, but in practice such data has not become available. In general terms, Chinese planners estimated in December 1984 that about 30-40% of industrial production is included in the central plan, with this proportion expected to decline to around 20% in coming years. Similarly, an informed guess as to the proportion of production taking place primarily according to market principles might put this quantity at around 20%, including the small items completely outside of planning (about 3% of total output), and the proportion of planned commodities sold independently by factories.[44] These rough estimates would then leave us with an additional 40-50% of production in the ambiguous area of locally planned, or guidance planned, output. Clearly these figures would vary greatly between sectors, and are also in the midst of a process of rapid change. Thus, vehicle production was arranged to permit 10% of output to be sold on the market in 1983, but 40% in 1984, with plans for 1985 calling for 60% of production to be independently arranged according to market conditions, or supply of raw materials.[45]

This discussion of guidance planning should also shed light on Chinese plans to rely increasingly on "economic levers." Chinese planners interviewed in December 1984 consistently cited the supply of energy at a subsidized price as an example of operating a guidance plan through economic levers. A western economist would be more likely to describe this as indirect manipulation of the economy through rationing, reserving the term "economic levers" for situations where government control of prices, taxes, and interest rates was used to balance supply and demand. This semantic distinction should remind us that Chinese conceptions of "guidance planning" and "economic levers" are in fact compatible with a fairly high level of direct government control of the economy, in ways which go beyond ordinary models of market socialism.

V. PRICE REFORMS

The most important component of current price reforms in China is the toleration of a market fringe in which prices are governed to a significant extent by market forces. If planners are successful in implementing their intention that the marketized sector of the economy expand, this change will automatically imply significant price reform. The strategy of fixing supplies of low-price commodities is also being followed in some cases where the state maintains its monopoly on supply: for instance, in Chongqing, current quota supplies of gasoline are guaranteed at the existing state-set price, while all increased consumption is taking place at a price 40% higher.[46] Generally speaking, planners have had a difficult time in adjusting state-set prices, and progress in this area has been relatively slow. We noted above the failure to push ahead with charges on fixed capital use, the importance of which is even greater in a situation where expanding market influences are reshaping relative prices. In some ways, Chinese planners seem to view expanded market influence as an alternative, as well as a supplement, to the difficult task of realigning state-fixed prices.

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[44] These rough estimates are drawn from a number of estimates made by Chinese planners in December 1984, including Xu Zhen, State Economic Commission, discussion of December 3, 1984. See also *State Council Bulletin* #16 (1982), p. 696-8.

[45] Ling Yuxun, Deputy Director, Material Supply Bureau, briefing, December 4, 1984.

Although progress in realigning state prices has been slow, it has not been negligible, and the pace of change has accelerated. During the period from 1979-82, only a limited number of prices were changed. Prices of coal, iron ore, cigarettes and liquor were raised, while prices of machinery and tires have declined, and price controls were removed on small commodities. Since the beginning of 1983, however, many more price changes have taken place. At the beginning of 1983 the price of cotton textiles was raised, while that of synthetic fabrics was reduced. These changes applied to over 10,000 individual items, with a total value of over 40 billion *yuan*. Further, during 1983 the price of light industry consumer durables was reduced by amounts ranging from 8% (for electric fans) to 17% (for color television sets). The price of many chemical products was raised from 20-50%, and the price of railroad freight transport was raised 21%. These changes clearly mark 1983 as the year in which substantial adjustments of state-set prices began in earnest.[47]

Even more crucial is the fact that the October reform document clearly state the intention of planners to gradually adjust the most important—and most sensitive—prices of consumer goods. Unfortunately, the announcement of these changes immediately triggered withdrawals from bank accounts in some large cities, further impressing on planners the sensitivity of these types of planned price increases. Planners responded not by eliminating plans for price increases (though they may have delayed them slightly), but by stressing that wage increases would precede price increases, and that urban workers could be assured that price increases would not cause declines in living standards. Current plans continue to call for gradual price increases beginning in 1985, with the first step increasing the price of subsidized consumer goods in the hope to eliminate a portion of subsidies (less than 50%) in the first year.[48] The combination of the price changes already initiated in 1983, and the commitment to proceed with comprehensive price reforms in 1985 clearly signal the end of the long period in which prices were fixed for years at a time.

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[46] Xiao Yang, Deputy Mayor of Chongqing, briefing, December 12, 1984.

[47] *1984 JJNJ*, p. IV-49-51.

[48] Remarks by State Councillor Zhang Jingfu, Beijing, December 3, 1984.

VI. CONCLUSION

Ultimately the further progress of China's industrial reforms depends on the extent to which the individual enterprise can be made truly responsible for its own operation, and can obtain sufficient independence of action to make this responsiblity meaningful. The State Council regulation of May 1984 on expanded enterprise autonomy clearly expresses the intention of the central leadership in this area. It stipulated that enterprises were to have independent authority over the following areas:

1. Production and sales of outside-of-plan output, theoretically subject to the price restrictions described above.
2. Power to decide the disposition of retained funds, including the right to grant bonuses without upper limits.
3. Power over personnel matters in the factory, except for the appointment of the factory manager and first party secretary.
4. Sale of fixed assets.
5. Right to promote a certain proportion of workers, with this proportion linked to profitability.[49]

These powers, if successfully implemented, would give enterprises a clearly greater degree of control over their own operation.

At the same time, a number of other changes of the industrial managment system have been announced which are also intended to reduce the "petty tutelage" of the enterprise to its supervisory organs. Policy since the May 1984 regulation has stressed the authority of the plant manager, particularly pointing out that the manager, and not the party secretary, is responsible for the operation of the factory. While this decision has implications for the exercise of authority within the enterprise which are beyond the scope of this paper, it also is intended to eliminate one of the many authority relations to which enterprises are subject. Similarly, recent stress on the role of cities in economic managment clearly has the intention of reducing the direct control of enterprises by provincial authorities (as well as the desire to make circulation of planned commodities correspond more to natural economic boundaries). This is clearly seen from the stress that has been given throughout the second half of 1984 that enterprise supervisory bodies—be they central ministries or newly empowered cities—should restrict their activities to general policy guidance and plans for technological improvement, and not be involved in the concrete management of factory production.

Nevertheless, all these programs remain primarily expressions of intent. In practice, local and national authorities have so many instruments to influence enterprise operations that it is inconceivable that they would not continue to shape enterprise decision-making in line with their own interests. Indeed, it is not clear that Chinese planners can even conceive of a situation where an enterprise might pursue interests in oppositions to those of planners, once planners have forcefully expressed an opinion. Rather the stress on enterprise autonomy should perhaps be interpreted as an exhortation to planners to adopt a management style which, by giving their subordinates (the enterprises) more authority to make day-to-day decisions, results in more effective decision-making at all levels of the hierarchy. Moreover, in day-to-day operation, the enterprise is subject to the demands of many different agencies, and must exert much of its managerial talent in the coordination of these often conflicting demands.[50]

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[49] "Temporary Regulations on Expanded Autonomy."

Generally speaking, in recent years Chinese attempts to reform the authority relations within the state-run industrial sector have not been very successful. This is manifested in the relatively slow progress of price reform, the failure to implement fixed capital fees, slow implementation of the program of shifting capital construction allocations to a repayable basis, and constant—and sometimes frustrated—plans to reorganize the authority relations of enterprises between central government and localities. It is partly as an alternative to these frustrated plans--and partly a reflection of the center's weak control over the economy as a whole—that the expansion of the marketized element of the industrial economy has become the most significant component of economic reforms. Just as China's economy was less planned in general than other CPE's, so its economic reform program is being carried forward in a less planned fashion.

In the short run, enterprises will continue to be enmeshed in a bargaining relationship with a number of superiors. Indeed, the realm of bargaining has expanded in recent years so that it now covers virtually every aspect of enterprise relations. Instead of simply bargaining about plan levels, enterprises now bargain with their superiors about energy supplies, profit retention and tax, supply of investment, and freedom to sell output. It is quite possible that the new bargaining environment will lead to a more efficient operation of the economy, but it may also lead to less efficient operation. We simply don't know what combination of bargaining tools is likely to be most compatible with the Chinese industrial management system. In the long run, really fundamental changes in the relationship between enterprises and their governing bodies—changes which have not yet taken place—are essential if reform is to continue to develop. For now, all that can be said is that the industrial management system has broken decisively with its past forms, and is developing toward an uncertain future.

TABLE I.—FIXED INVESTMENT IN STATE-OWNED UNITS

	Unit: Billion yuan				Unit: Percent		
	Total	Budgetary	Retained funds	Bank loans	Budgetary	Retained funds	Bank loans
1956	16.08	15.01	1.07	....	93.3	6.7	....
1957	15.12	13.41	1.72	....	88.6	11.4	....
1958	27.91	21.64	6.26	....	77.6	22.4	....
1959	36.86	27.21	9.60	....	73.9	26.1	....
1960	41.66	30.18	11.48	....	72.4	27.6	....
1961	15.61	9.39	6.22	....	60.1	39.9	....
1962	8.73	7.28	1.45	....	83.4	16.6	....
1963	11.67	9.92	1.75	....	85.0	15.0	....

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[50] See the paper by Andrew Walder in this volume. The best Chinese description of this reality is given by Gong Guanshi, "How to Solve the Problem of Many Leaders of the Industrial Enterprise," *Jingji Guanli* #1 (1984), pp. 6–10.

TABLE I.—FIXED INVESTMENT IN STATE-OWNED UNITS—Continued

	Unit Billion yuan				Unit Percent		
	Total	Budgetary	Retained Funds	Bank loans	Budgetary	Retained funds	Bank loans
1964	16.59	13.95	2.60	0.04	84.1	15.6	.2
1965	21.69	18.61	2.79	.29	85.8	12.9	1.3
1966	25.48	21.47	3.45	.56	84.3	13.5	2.2
1967	18.77	13.52	5.12	.13	72.0	27.3	.7
1968	15.16	11.02	3.97	.17	72.7	26.2	1.1
1969	24.69	18.65	5.86	.18	75.5	23.7	.7
1970	36.81	27.72	8.79	.30	75.3	23.9	.8
1971	41.73	29.50	12.08	.15	70.7	28.9	.4
1972	41.28	27.52	13.55	.21	66.7	32.8	.5
1973	43.81	29.44	13.94	.43	67.2	21.8	1.0
1974	46.32	30.38	15.43	.50	65.6	33.3	1.1
1975	54.49	35.09	18.52	.89	64.4	34.0	1.6
1976	52.39	32.49	18.95	.95	62.0	36.2	1.8
1977	54.83	33.07	20.82	.94	60.3	38.0	1.7
1978	66.87	44.39	21.36	1.13	66.4	31.9	1.7
1979	69.94	45.72	21.74	2.49	65.4	31.1	3.6
1980	74.59	38.23	27.21	8.70	51.3	36.5	11.7
1981	66.75	28.64	28.33	9.06	42.9	42.4	13.6
1982	84.53	30.96	38.29	13.69	36.6	45.3	16.2
1983	95.20	38.66	41.36	13.57	40.6	43.4	14.3
1984	118.52	46.21	51.49	18.25	39.1	43.6	15.5

Sources: 1983 Statistical Yearbook, pp. 323, 360; various issues of the Economic Yearbook: (1981), p. IV-9; (1982), p. V-297; (1983), p. III-82. The figure for budgetary capital construction for 1979 from the Statistical Yearbook has been reduced by .5 B. to account for bank loans improperly listed as budgetary. Figures for 1980-2 include foreign investment not coordinated through the budget, of .45, .72 and 1.60 B. in each year. These have not been included in the separate funding categories, as a result of which, these sums to less than the total amount of fixed investment. 1984 JJNJ, passim.

TABLE II.—LOCAL REVENUE SOURCES

[Unit: Billions of yuans]

	Depreciation	Retained profit	Domestic loans	Foreign loans and investment
1980	18.3	9.6	8.1	0.4
1981	20.0	11.8	12.3	.7
1982	22.0	17.0	17.0	1.6

Sources: Naughton, "Decline of Central Control," Table IV. Domestic loan availability in 1982 is drawn from the 1983 Economic Yearbook, p. IV-148-9, and Zhongguo Baike Nianjian (1983), p. 305, 308. These figures are estimates rather than official Chinese data. Revenue sources will not tally closely with realized investment, which is the basis for the figures in Table I, because not all available funds can be spent in a given year. In the case of retained profit, only about 60% goes toward fixed investment, with the remainder funding worker bonuses and collective welfare outlays.

TABLE 3.—PROPORTION OF KEY PRODUCERS' GOODS ALLOCATED BY THE CENTRAL GOVERNMENT

[In percent]

	1965	1978	1980	1982
Finished steel	95	80	58	53
Cement	71	36	29	25
Coal	75	54	54	51

Note.—Caution should be used in accepting these figures, since they come from different sources which may have used different methodologies in computing the figures. The 1965 and 1982 figures (which are clearly comparable) refer to the proportion in central allocation; the 1978 and 1980 figures refer to the proportion under local control, which has been subtracted from 100% to derive central proportions. Such a procedure does not work in the case of timber, because a significant part of timber production occurs outside of allocation. In addition, Zhong Zhiqi, "The Circulation of Means of Production," p. 313, gives figures for 1981 which imply a higher central government share, for unknown reasons.

Sources: 1965, 1982: Li Kaixin, "Concentrate Material Resources to Guarantee Keypoint Construction," Xinhua Yuebao 9(1983)88. 1978: Zhang Sushan, "A Few Opinions on Reforming the Material Supply Management," JJGL 8(1979)16. 1980: Li Kaixin, "China's Management of Materials," 1981 Jingji Nianjian, p. IV-124.

THE INFORMAL DIMENSION OF ENTERPRISE FINANCIAL REFORMS

By Andrew G. Walder*

CONTENTS

	Page
Introduction	630
The Local Business Relationships of Enterprises	632
The Flexibility of Financial Measures	634
The Procurement of Supplies	635
The Pricing of Output	636
Bank Loans, Repayment Schedules, and Subsidies	637
Taxation	638
Informal Factors Affecting Enforcement	641
Conclusions	644

INTRODUCTION

In the six years since 1978, China's state-owned industrial enterprises have undergone a series of well-publicized planning and financial reforms. Like their counterparts in eastern Europe, these reforms have been designed to improve enterprise capital and labor productivity by shifting managerial attention from the traditional physical output indices of performance to financial ones. Reformers have sought both to devise 'harder' measures of financial performance and to provide financial incentives for efficiency. This has involved, first of all, a rapid progession of methods for dividing factory receipts in a way that gives enterprises an interest in expanding their profitability. China's large and medium-sized state enterprises have now moved from various formulae for sharing profits with the state to a new method of taxing enterprises instead of having them remit a shifting percentage of their profits.[1] These reforms have involved, secondly, an effort to give managers more autonomy in using their retained funds for plant renovation and work incentive schemes, and in producing and marketing selected products outside of the state plan.

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[1] These policy innovations have been described and analyzed elsewhere, and there is no need to repeat them here. See Barry Naughton, "The Profit System," *The China Business Review* (November-December 1983), 14-18; idem, "False Starts and Second Wind: Financial Reforms in China's Industrial System," in Elizabeth Perry and Christine Wong, *The Political Economy of Reform in Post-Mao China*, (Cambridge, MA: Harvard East Asian Monograph Series, No. 120, 1985); and Bruce L. Reynolds, "Reform in Chinese Industrial Management: An Empirical Report," in *China Under the Four Modernizations, Part 1. Selected Papers Submitted to the Joint Economic Committee, Congress of the United States* (Washington D.C.: U.S. Government Printing Office, 1982), 119-137. Small state enterprises continue to use the profit contracting system: see Xu Yi, "Lun Li Gai Shui de Di Er Bu Gaige," *Renmin Ribao* (18 September 1984), p. 5.

Most of the critical analysis of these reforms, in both China and the United States, has focused on the formal logic of the new financial schemes in order to evaluate their actual incentive effects. Analysts have repeatedly pointed out, and with good reason, that the lack of significant price reform continues to undermine the meaning of financial indicators and the incentives in the new system. Partial reform, according to this familiar argument, will only lead to initial imbalances that will eventually force a partial return to administrative intervention in the economy.[2] This reflects the first task of any reform program—to think through the interests of the state and the enterprise, and to design and implement a comprehensive package of financial mechanisms and incentives. This in itself is a highly complex matter.

Experience in eastern Europe, brought home most forcefully by the work of Hungarian economists, has shown that enterprise reform has another important dimension. Restructured financial relationships between enterprises and their leading organs, even if price reform is carried out, can be robbed of their incentive effects by informal practices that surround the interpretation and enforcement of new financial mechanisms at the local level. These writers have pointed to a continuing "paternalistic" relationship that restrains state organs from strictly enforcing financial regulations. Janos Kornai has described this situation as a "regime of bargaining"—not a market, and not a bureaucracy—in which enterprises use a variety of strategies to obtain preferential financial terms, or temporary exemptions, from leading organs, and in which leading organs have a wide range of discretion in interpreting and enforcing various rules. The economic effect is summarized by Kornai's well-known concept, the "soft budget constraint." Despite formally objective measures of financial performance and seemingly hard constraints on enterprise financial operation, "soft" and flexible enforcement weakens both the positive incentives of profit retention and the negative compulsion of insolvency.[3] This literature shows that there is a second, equally vital, dimension of enterprise financial reforms—to think through the political and organizational problems of enforcement at the lowest levels of the economic bureaucracy. If this problem is not addressed, no financial reform, no matter how well thought out, is likely to succeed.

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[2] See, for example, Alec Nove, *The Soviet Economic System*, second edition (London: Allen & Unwin 1980), 177-203; Peter T. Knight, *Economic Reform in Socialist Countries. The Experiences of China, Hungary, Romania, and Yugoslavia*. World Bank staff working Papers No. 579 (Washington D.C.: The World Bank, 1983), 107; Ed A. Hewett, "Economic Reform in the Soviet Union and Eastern Europe," Paper presented at the conference "To Reform the Chinese Political Order", 19-23 June 1984, Harwichport, Mass.; Susan L. Shirk, "The Political Economy of Chinese Industrial Reform," ibid.; Thomas G. Rawski, "Productivity, Incentives, and Reform in China's Industrial Sector," Paper presented at the 36th Annual Meeting of the Association for Asian Studies, 23-25 March 1984, Washington, D.C.; and Andrew G. Walder, "China's Industry in Transition: To What?" *Annals of the American Academy of Political and Social Science* (November 1984).

[3] Janos Kornai, " 'Hard' and 'Soft' Budget Constraint," *Acta Oeconomica* 25 (1980): 3-4, 231-246. See also Kornai's *Economics of Shortage* (Amsterdam: North-Holland, 1980), and T. Laky, "Enterprises in Bargaining Positions," *Acta Oeconomica* 22 (1979): 3-4. Shirk's stimulating survey of the macro-politics of reform in China places this observation in a broader political and economic perspective (see footnote 2).

This essay addresses the issue of whether, in fact, the informal relationships between enterprises and their leading organs are changing in ways that will allow China to avoid the problems that have quietly undermined reform in Hungary. This requires a relatively detailed understanding of the formal as well as informal enforcement of financial regulations at the local level since the implementation of the reforms. Here I can offer only a preliminary sketch of these relationships, for this is one of the least-understood areas of the Chinese economy. I will not assume, or assert, that practices reported in Hungary also exist in China. Instead, I will piece together the main outlines of these local relationships from recent interviews conducted in Shanghai with incumbent executives, and in Hong Kong with recently emigrated industrial officials.[4]

THE LOCAL BUSINESS RELATIONSHIPS OF ENTERPRISES

Discussions of the formal aspects of enterprise reform sometimes leave the inadvertent impression that industrial firms are, or shortly will become, independent business entities whose relationships with the state and other enterprises are to be governed primarily by considerations of profit and financial flows. It is probably more accurate at this point to say that enterprise profit and financial flows are in fact dependent on the varied (semi-bureaucratic) relationships that an enterprise has with leading organs and other enterprises. The state enterprise is enmeshed in a tight, complex, and interdependent web of bureaucratic relationships, and it is in such a setting that reforms must be implemented.

The key business relationships are with the enterprise's "leading organ" (in most cases a company or industrial bureau of a city or a county), with the local finance bureau and, more recently, its associated taxation bureau, and with the local office of the state bank. Also important are the relationships with other enterprises, primarily suppliers, that are not arranged by leading organs in the sales and supply plans, but by the enterprises themselves.

The enterprise's primary relationship, and a multi-sided one, is with the industrial bureau or company that is its "leading organ". The enterprise's planned output is part of the output plan of the leading organ, and the bureau is responsible for setting this plan from year to year, in all of its financial, technical, sales and supply aspects. The bureau is also responsible for long-term planning: approval and funding for major plant renovations, expansions, and other fixed capital investments are obtained here. As the planning organ, the industrial bureau is responsible for organizing the sales and supply plan for the enterprise, and to the best of its ability, it will arrange sources of supply and sales contracts for planned output. If it is unable to organize these inputs from plants in its local jurisdiction, it will try to have the supply sources included in a higher-level (provincial or ministerial) materials balance, or it will intervene with local materials supply bureaus, or commercial organs, to secure a source of supply.[5] While the recent reforms have encouraged enterprises to produce outside the state plan and to arrange their own sources of supply and sales outlets for this output, leading organs can still be very helpful in arranging these "outside the plan" sources.

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[4] In August 1984 I had a series of 3-hour interviews with 4 executives in 3 different factories, and one with a municipal taxation official. Two of the factories had been designated as 'experimental points' for the implementation of enterprise reforms. In Hong Kong in June and July 1984 I conducted much longer interviews with two former executives in finance and sales and supply who had emigrated after mid-1983. In 1979-80 in Hong Kong, as part of a larger interviewing project, I interviewed 8 factory executives in finance, production planning, sales and supply, and engineering, 7 with experience in industrial bureaus, and 33 other factory staff from various departments. These early interviews provided the background for the more focused interviews conducted in 1984.

Enterprises must also report continuously to various departments of the industrial bureau. Monthly and quarterly production reports are sent to the planning department. Regular reports on wage and bonus payments are sent to the labor and wages department. Reports and requests for funds spent on renovations of plant equipment are sent to the technical department. A variety of financial reports are sent to the financial department. Personnel from each of these departments (and others) work closely with their counterparts in the enterprise. In some departments, particularly finance, officials are assigned individual responsibility for a specific enterprise or enterprises. These officials are in regular, and sometimes continuous contact with factory personnel, either receiving visits from them in the bureau headquarters, or making regular visits to the enterprises in their charge. The reforms have freed enterprises somewhat from these restraints from above—for example, decisions to renovate machinery or to hire, fire, and remunerate workers no longer require prior approval from technical and labor and wages departments.[6] But the key planning and financial relationships, while modified, have not been fundamentally changed.

A second set of relationships is with the local finance and taxation bureaus. These organs have taken a more active and prominent role with the advent of the reforms, because they are responsible for setting and re-setting the terms by which factory revenues are divided with the State, and for enforcing the implementation of these terms.[7] The finance bureau has set and enforced the terms of profit retention when profit sharing schemes have been used. This responsibility has shifted to taxation bureaus as enterprises have begun to operate under the "tax-for-profit" system—the tax organs determine, adjust, and enforce the new tax rates on enterprises. The finance bureau must scrutinize (in concert with leading organs) enterprise requests to take a large loan, to expand productive capacity, or begin a new product line. They also receive regular financial reports on enterprise operations, and cooperate with enterprise personnel in identifying and heading off financial problems. Finance and taxation bureaus also work closely with enterprise executives. As is the case for various departments of the leading organs, an individual official is in charge of a specific enterprise or enterprises.

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[5] Barry Naughton, in "Economic Reforms and Decentralization: China's Problematic Materials Allocation System," Paper presented at the Regional Seminar in Chinese Studies, University of California, Berkeley, 6 April 1984, pp. 6-7, also points out that the local industrial bureaus play an important role in the allocation of materials and by extension, in distributing the burden of shortages.

[6] Before 1978, enterprises needed permission from the labor and wages department of their leading organ in order to fire a worker, and they also needed permission from the equipment department of their leading organ to spend more than a minimum amount of funds on the renovation of equipment.

[7] See David Bachman, "Implementing Chinese Tax Policy," in David M. Lampton (ed.), *Policy Implementation in Post-Mao China* (forthcoming).

A third relationship is with the local branch of the State bank. Banks perform three services for enterprises. They manage their cash accounts, making all payments and transfers to accounts of other enterprises and organs; they watch accounts to make sure that there arises no temporary cash flow problem; and in concert with leading organs and financial bureaus, they scrutinize factory requests for loans and manage their repayment.

A fourth set of relationships is with other state enterprises, commercial organs, and collective enterprises in rural areas. The recent reforms have encouraged enterprises to establish these lateral economic relationships as part of their outside-the-plan production, but they have always existed on both a formal and informal basis. Enterprises rely on these direct lateral links primarily to ensure their sources of supply, both for that proportion of their planned supplies that their leading organs are unable to arrange for them, and especially for the above or outside the plan portion. But they also rely on these links for other things: for both short- and long-term loans at preferential rates or without interest; for the procurement of scarce foodstuffs or consumer items to be distributed to their employees; for the loan of materials or equipment; and even, more recently, for access to hard currency for the import of foreign supplies and equipment.[8]

The significance of all of these relationships, for the present discussion, is that they are a non-economic variable that can greatly influence a factory's profits, and therefore the financial measures and incentives central to reform.

THE FLEXIBILITY OF FINANCIAL MEASURES

The shift from profit sharing to a taxation system on enterprise revenues, begun on a wide scale in mid-1983, is part of the continuing effort to put state-enterprise relations on a "hard" fiscal basis, and eliminate the bargaining and gamesmanship that surrounds the setting of profit targets and profit retention schedules. One of the most encouraging features of the new tax system is that it contains several taxes designed to compensate for price irrationalities.[9] One American analyst has reacted to this shift with caution, based on a reading of the Hungarian experience and observation of the initial implementation of reform in China. Susan Shirk argues,

> The Chinese case suggests that partial reform of a command economy does not eliminate particularistic bargaining, but instead provides new issues for different levels to negotiate. The focus of bargaining shifts from plan quotas to the proportion of profits and foreign exchange retained,

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[8] There are many other kinds of informal arrangements between enterprises; indeed these lateral relationships deserve full treatment in a separate paper. Here they will not be discussed in detail because the matter at hand is the vertical relationships between enterprises and the state agencies that guide them.

[9] The "adjustment tax" currently performs this role, but in the coming year the product, value-added, and resource taxes will also be levied toward the same end. An excellent description of bargaining regimes in earlier profit contracting systems is in Naughton, "False Starts and Second Wind."

> tax rates, and approvals for imports and joint ventures. Bail-outs for deficit enterprises and allocation of investment continues to be subject to bargaining.[10]

The preliminary research reported here supports and elaborates this claim. Interviews conducted in Shanghai and Hong Kong in the summer of 1984 revealed that there is still a great deal of flexibility in the relationships between enterprises and leading organs, and that enforcement decisions are often made subjectively. For enterprises now moving into the second year of the "tax-for-profit" reform, the most important areas of flexibility are in the procurement of supplies both inside and out of the state plan (and the price paid for them); in the prices that a firm is allowed to charge for its products; in the securing of bank loans, the rates of interest attached, and the schedule of repayment; and in the taxation of the enterprise.[11] All of these decisions are made in the local web of business relationships, or through them, and all of them affect the factory's profit, or the "hard" financial measures of economic performance.

THE PROCUREMENT OF SUPPLIES

The timely procurement of supplies and parts in the proper specifications has long been a key constraint on enterprise performance in China, as in the other centrally planned economies.[12] The shift in emphasis from physical output to financial targets has not changed this. If supply shortages delay production or lead to shortfalls, financial figures suffer as well. Enterprises have long engaged in a quasi-legal barter trade to meet supply shortfalls, and as part of this trade they have stockpiled goods for which they have no immediate use but which may be bartered for goods they do need. The recent reforms have added two new elements to the situation: enterprises that are allowed to produce and market products once their planned targets are met must procure additional supplies on their own; and the prices of inputs procured outside the plan are now allowed to fluctuate within limits.

Factories that want to take advantage of their expanded autonomy to produce outside the plan need to procure supplies for this above-quota output, and at the lowest possible price (in almost all cases, this is the state set price, not the negotiated price). Their supplies are technically guaranteed at state set prices only for their needs under the state plan.[13] For their production outside the plan, enterprises may still be able to procure inputs from local materials supply bureaus or commercial organs at the low state prices. But this depends, in part, on the availability of the goods, and this availability, in turn, depends on the willingness of the leading organ to help the enterprise procure them. The industrial bureau can intervene with these organs on behalf of the enterprise. Sometimes it can prevail on the local government to engage in barter trade with other provinces to procure the needed supplies.[14] Sometimes the bureau can put pressure on another enterprise within its jurisdiction either to sell its stockpiled supplies or sell its outside-the-plan production to the factory at state prices.[15] If the leading organ is unwilling or unable to help out, the factory must try to arrange an independent barter deal with another enterprise, or arrange a temporary loan of materials from another firm with which it enjoys a close cooperative relationship. Failing this, the enterprise must pay for the supplies at the higher negotiated prices, which in Shanghai may be legally marked up 20 percent above the state price (higher illegal prices have been complained about in the press). The ability of the enterprise to get its leading organ to intervene with suppliers on its behalf is therefore a variable that affects financial performance.

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[10] Shirk, "The Political Economy of Chinese Industrial Reform," p. 7, n. 29.

[11] There is another important area of flexibility: in granting access to foreign exchange funds for the import of parts and materials. According to officials and executives in Shanghai, this is a very simple matter: one must apply to the central government if the enterprise does not itself earn foreign exchange through exports. Failing this, an enterprise might try to persuade a commercial organ that possesses foreign exchange reserves to lend it some in a barter agreement for its products. Many enterprises in Shanghai now also pay a charge on existing fixed capital, but this apparently is not very flexible, nor are the charges very high. See Naughton, "False Starts and Second Wind."

[12] In fact, this may be a more important constraint in China than in other centrally planned economies. Naughton has shown that a major difference between China and other centrally planned economies is that China's is less centrally planned. China's provinces have long had much greater control over investment and materials allocation than is the case elsewhere. One result is that materials balances drawn up at local levels are less precise and complete, requiring more effort on the part of the enterprise to assure sources of supply. See Barry Naughton, "Economic Reforms and Decentralization."

THE PRICING OF OUTPUT

Before the reforms, industrial enterprises were not allowed either to set or readjust the prices at which they sold their products (although they have long had considerable leeway in the informal barter trade). They still are not generally allowed to do so for their production under the state plan, but there is now flexibility in prices outside the plan. In Shanghai, factories are allowed to increase (or decrease) the prices of their above-quota production by 20 percent of the state price without permission from their leading organs. If they can obtain permission, they are allowed to raise them even higher.

With the recent changes, however, increasing price flexibility is creeping into the state-plan production as well, primarily through the development of new or improved products. According to officials at the Shanghai Machine Tools Factory, prices for a certain range of special, high quality products may be raised after application to leadings organs. This is routinely done when an innovation is made in an existing product. The enterprise must convince the bureau that the product is significantly improved, but there are no precise technical guidelines in this area. When the enterprise has developed an entirely new product, it is allowed to set its price according to both its costs of production and market demand. After a trial period of several months at this price, the factory's experience is reported to the leading organ, which then sets the final price after further consultation with the enterprise and other local agencies.

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[13] The 'guarantee' of supplies is not iron-clad. To have a purchase approved in a supply plan is not the same thing as having a source of supply for that item. Enterprises rarely have all of their sources of supply specified for them in their purchasing plan, and they have always had to procure a portion of their planned inputs on their own—through goods ordering meetings, materials exchange conferences, independent procuring agents, and informal barter trade. Due to shortages and inflation in crucial industrial inputs in the past few years, some enterprises have had to pay higher prices for their 'within plan' inputs and have as a result begun to lose money. On this last point, see Barry Naughton, "The Profit System," p. 16.

[14] Shanghai, according to an example raised in an interview, barters manufactured goods with Shanxi province to obtain coal for its industries.

[15] This sometimes occurs at goods ordering meetings, organized by bureaus, local governments, and provinces to put factories in touch with potential suppliers. Sometimes if an enterprise has difficulty getting another to agree either to a sale or a barter deal, they may ask the organizing authorities to intervene (Interview with former head of a factory sales and supply department, Hong Kong, June 1984, and with a former factory vice-director, Hong Kong, November 1979).

In this non-market price bargaining, enterprises that have complex, high-technology or highly differentiated product lines are the ones most able to obtain price increases through these routes. Increasing varieties of spare parts and new and improved products give the firm greater opportunity to increase its revenues without significantly increasing its costs. Producers of such undifferentiated products as coal or pig iron, especially those crucial to other key industrial enterprises and therefore very tightly controlled by the state price commission, do not have such bargaining room. The ability to wring these price concessions out of the local bureaucracy can significantly affect a plant's revenues.[16]

BANK LOANS, REPAYMENT SCHEDULES, AND SUBSIDIES

Other than a portion of their working capital, which still is provided by the finance bureau as part of the enterprise's financial plan, funds for factory operations are now drawn from interest-bearing loans.[17] The enterprise must specify why the funds are needed, and it must demonstrate that it can be expected to repay the loan within the scheduled period. If funds are for a new project, the bank must evaluate its feasibility. The bank, which has all the financial records at its disposal, evaluates the request and must give its approval before the loan is made. For most small or short-term loans, the bank itself makes the decision primarily according to the determination of the officer assigned to that enterprise. For larger or long term loans, needed for major new projects or plant expansion, the officials from the leading organ, finance bureau, and bank meet together with enterprise executives to evaluate the proposal. Sometimes higher organs must also give their approval.

For all of the loans, there are several possible interest rates. Low interest loans can be granted to enterprises for projects that the local authorities are interested in encouraging, to stimulate expanded production in items urgently needed by local industry, or to aid in the development of new products or the improvement of existing products. The bank also has the option of adding interest penalties if a firm is late in repaying a loan. Whether the firm is given a low interest rate depends on its ability to sell its project to the leading organs and convince them to intervene with the bank for the favorable terms. Whether the tardy firm can avoid interest penalties depends on its ability to convince the bank that its problems are due to "objective conditions" rather than a poorly conceived project or incompetence—for example, supply problems, or the loss of a market for products.[18]

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[16] According to executives interviewed in Shanghai, one consideration in giving this permission is cost increases for the firm's inputs, and another is the urgency of demand for its products.

[17] In Shanghai, 30 percent of the working capital is now reportedly derived from interest-bearing bank loans, and 70 percent from the finance bureau. Some large enterprises there have very recently begun to pay interest on the portion provided by the finance bureau. Funds for fixed capital investment in Shanghai now also come from interest bearing loans.

Enterprise managers describe bank officers as sympathetic and helpful. The close working relationships between the bank and the enterprise fosters this. The reported ease with which enterprises can obtain small or short-term loans, and the role of the bank in evaluating the firms' requests, makes the bank something of a partner in the project. If problems are encountered in a promising project of great interest to the local government, the debts are easy to forgive. Given the low interest rates on these loans, flexibility in repayment is much more significant than the actual rate of interest. Short-term rescheduling is reportedly a routine matter; long-term delays must be approved by the financial bureau and leading organs. In any case the local circle of officials all share an interest in assisting the enterprise repay its debts. The industrial bureau itself has an interest in the output of the plant, which goes into its materials balance and production plans. If officials in the leading organ have gone out on a limb to support a project, they have an even greater stake in continuing to finance the operation. Loans for which repayment has been delayed indefinitely become informal subsidies. The status is formalized when the bank, following the decision of the finance and industrial bureau, clears the debt from the factory's ledger. Before reaching this point, there are many ways that state agencies can assist an enterprise in repaying its debt. Such assistance, if the firm can convince the leading organs that its problems are "objective" in nature, may take the form of favorable treatment in other areas—in the procurement of goods and pricing of products mentioned above, or in the taxation of the enterprise, described below. Tax payments, for example, have in the past been diverted into loan repayments when leading organs permit.[19]

TAXATION

The tax system is currently in a state of flux: the enterprise officials interviewed in the summer of 1984 described a situation that had changed considerably in each of the past 2 years, and that was scheduled for further change beginning in October. In 1982, these enterprises paid a flat 55 percent industrial and commercial tax (*gongshang shui*) on their net earnings after sales taxes (this tax varied by industry). The remaining 45 percent of their revenues were designated as "profit". Of this, 90 percent was remitted to the state; 10 percent was retained by the enterprise.[20] In 1983, the first step of the "tax-for-profit" reform, the same 55 percent industrial and commercial tax was levied, an additional income tax (*suode*

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[18] We should note, in discussing interest rates, that some analysts feel that the rates are unimportant so long as the terms of repayment are flexible. See Kornai, "'Hard' and 'Soft' Budget Constraint."

[19] Naughton, "False Starts and Second Wind," p. 24. Note that tax payments are made to the same bank branch that manages the enterprise's finances.

[20] This was the least liberal of the profit retention schemes in use during this period. See Reynolds, "Reform in Chinese Industrial Management."

shui) was applied, and an adjustment tax (*tiaojie shui*) was set at a rate that brought the total amount of income remitted to the state up to the level of the total of the preceding year.[21] In 1984, increased factory profits were to be taxed at the same rates, except the adjustment tax on that portion would be reduced by a percentage determined by the taxation bureau to provide an incentive for the factory.[22] In addition, a wide variety of new taxes were to be added in 1984–85 to replace the industrial and commercial tax, and gradually phase out the adjustment tax. The details of this system vary from region to region, and even between industrial sectors in Shanghai.

There are a number of sources of flexibility, both in the enforcement of the current system and in the arrangements planned for the immediate future. These areas of flexibility are rooted in the principles of the tax enforcement system as it is currently conceived, and they are not due solely to the fact that the system is still very much in flux. One major source of flexibility in the emerging tax system is the growing number of taxes and the increasing number of levels of government responsible for enforcing them. In late 1984 Shanghai industrial enterprises were to be taxed under three separate categories: sales taxes (*xiaoshou shui*), the most important of which are the product (*chanpin*), value-added (*zengzhi*), and resource (*ziyuan*) taxes; net profits taxes (*jing lirun shui*), which include the income and adjustment taxes; and a series of new local taxes, including building, land usage, city maintenance, and vehicle license taxes.

By the end of 1984, some of the taxes were to be assessed by local authorities, and some by branches of the central government. Furthermore, the ability to give tax exemptions was, and would continue to be possessed by several different organs at both levels of government. For example, product taxes set by the Ministry of Finance can in many cases be lowered or voided by local authorities without prior approval. Prior approval is reportedly needed only for a certain list of commodities: sugar, tobacco, salt, wine, and bicycles were the examples given.[23]

Local authorities retain flexibility over product taxes, we were told, for four purposes (these were the examples given, they are not an exhaustive list). First, a locality may want to lower taxes or give exemptions to encourage a factory to establish a new product line, or to promote production of certain items in short supply in the area. Second, they may lower product taxes for factories that agree to recycle waste materials for use in production. Third, they may do so for a factory that has imported equipment, and needs to be freed of taxes so that it can repay its debts. And fourth, a factory that runs into financial difficulties because of "objective conditions" can receive a tax exemption to help it out. "Objective conditions" apparently means "due to circumstances beyond control"—the examples given were a shortage of raw materials requiring the payment of premium prices or the import of foreign supplies, and an unexpected oversupply of products, making it impossible for a factory to sell its goods.[24]

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[21] The adjustment tax was levied in order to protect state revenues and prevent a transitional windfall for enterprises. The rate was set separately for each enterprise, taking the previous year's remitted profit as a baseline. The criteria used in setting the adjustment rate are specified below.

[22] For example, if a factory's original adjustment tax rate was set at 20 percent, the tax bureau might set a 70 percent exemption on the increased profit, or a 6 percent adjustment tax rate. In Shanghai this was described as a rate that was to be reviewed every year. Recent policy statements indicate, however, that this rate should be left untouched for seven years (Xu Yi, "Lun Li Gai Shui," footnote 1). It seems likely that with new taxes being levied by different agencies for the first time, and reform continuing in other areas, these rates would certainly need to be adjusted frequently in the coming years.

[23] While in Shanghai we did not discuss who has the power to change the value added and resource taxes because they were not scheduled for implementation until later in 1984. In fact, the product tax is the only one in the sales tax category that was in use at the time of the interviews.

The adjustment tax is also set flexibly at the local level. The adjustment tax was originally set after a several-week period of consultation and discussion at the enterprise. Shanghai tax officials use five criteria to guide their decisions: the factory's welfare burdens; the factory's financial reserves; whether the firm is likely to need to develop its productive capacity in the near future; costs anticipated in the development of new products; and "the profit the state thinks the factory ought to be making". Only the first two of these criteria are entirely objective, the last appears entirely subjective, and the other two involve discussion and negotiation between leading organs and enterprise executives that involve mutual agreement over the factory's activities. There is plenty of room for discussion and negotiation. The adjustment tax on increased profit in subsequent years is set at a lower rate, according to similar considerations, and after a similar process of consultation.

There are, therefore, many routes that an enterprise can take in its effort to win a tax reduction or exemption. The plea of unfavorable "objective conditions" is probably the hardest to resist, because the contribution of objective and subjective factors in factory performance is usually very hard to assess. The lack of price reform can strengthen the hand of supplicants, because irrational prices are well known to have deleterious effects on some sectors. Tax flexibility is in part intended to help remedy the inequitable price structure (this is, in part, what a tax official means by referring to "the profit that the state thinks the factory should be making"). Taxes are adjusted upward for those in a favorable price niche, and downward for those in an unfavorable one. Taxes, however, are also expected to adjust for other "objective conditions"—the condition and age of capital equipment, the location of the enterprise, its transportation costs and local materials supply situation. With so many objective factors to account for, this is a rule of thumb operation, inevitably centered around a subjective concept of a "fair rate of profit." The problem with trying to compensate for irrational prices and other conditions through taxes is that it is difficult to avoid a levelling effect that actually takes away earnings due to superior management. The people we interviewed recognized this as a problem. As a municipal tax official put it, "The problem is that the adjustment tax, in trying to even out profit differentials due to objective conditions, might take away profits that an enterprise earned through good management. This is a hard thing to determine. It will be a difficult problem to solve".[25] The same official recognized that taxation would be a much more effective instrument if it did not have to bear the burden of unreformed prices as well. In the meantime, unreformed prices contribute to bargaining and flexibility.

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[24] All product taxes, even those controlled by the central government, can be lowered or voided if an enterprise's application is approved.

INFORMAL FACTORS AFFECTING ENFORCEMENT

This illustration of the flexibility in the financial guidance of enterprises shows not merely that it has many sources (and our list is at any rate very partial). More importantly, it shows the inherent subjectivity of many of the decisions that currently surround financial guidance. New financial mechanisms that appear to put hard financial constraints on enterprises are softened in the process of enforcement. This is not solely because leading organs are reluctant to close down a money-losing firm. It is also because the financial measures of enterprise performance are themselves the product of the prior actions of leading organs regarding supplies, prices, loans, and taxation. We must recognize that in the course of reform, enterprises do not all start from a clean slate: their current financial health is influenced by a series of prior enforcement decisions. This debases profit as a measure of actual enterprise efficiency (compounded by irrational prices), and in the absence of some unbiased measure of performance, decisions about the subsequent enforcement of regulations are opened wide to particularistic pleading and subjective rule of thumb decisions. The danger is that at the enforcement stage, an informal notion of a "fair rate of profit" becomes entrenched (and such a notion is well in evidence), and all highly profitable enterprises are automatically given less leeway, in effect subsidizing the money losing and less profitable. The problem is that, as Naughton has said of previous profit sharing schemes, "the fundamental determinant of how revenues (are) divided remain(s) the interaction of the various levels of the hierarchy." [26]

Hungarian authors, who have heavily influenced analyses of this softening of budget constraints, often characterize the enterprise-state relationship, in which the fiscal constraint is softened, with the blanket term "bargaining". Indeed there is a good deal of informal bargaining—both subtle and overt. But the term does not adequately convey the variety and depth of the relationships that develop at the local level. And the concepts "bargaining" and "negotiation" do not by themselves convey the social setting in which these processes take place. To be sure, enterprises engage in concealment, hoarding, and special pleading as part of the standard gamesmanship long recognized as central to this bureaucratic culture.[27] But enterprises can also pursue their interests through

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[25] Interview with an official in the Financial Sciences Research Office, Municipal Government of Shanghai, 25 August 1984. A discussion of this problem with a visiting delegation of Chinese economists at Columbia University on September 18, 1984 elicited an identical statement.

[26] Naughton, "False Starts and Second Wind," p. 16.

[27] The classic description of these games is in Joseph Berliner's *Factory and Manager in the USSR* (Cambridge: Harvard University Press, 1957). My interviews with emigre management personnel in 1979-80 and 1984 have yielded a wealth of detail on similar behavior in China, both before and after the reform. One aspect of these games, deliberate falsification of financial

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sheer verbal persuasiveness, through purely political ties higher up in the local hierarchy (for example, being a pet project or model from which local officials derive political capital and prestige), or through personal relationships or an exchange of favors over the long term with key officials. Lateral relationships with other enterprises exhibit the same range: they may involve cold-blooded bargaining between firms, bribes by procuring agents, or they may involve uncompensated favors by firms with which the enterprise has a long-standing cooperative relationship (sometimes cemented by personal relations between executives).

One striking aspect of the enterprise's relationships with its leading organ, the finance and taxation bureaus, and the bank is how close, indeed intimate, they are. Officials in each of these organs work very closely with their counterparts in the enterprises they are responsible for. At the Shanghai Machine Tools Factory, for example, the tax official has his own desk in the enterprise headquarters, and spends most of his time there. The bank, to cite another example, knows before the enterprise does when it will run into financial problems, and often takes the initiative to suggest to the enterprise a loan or a request for rescheduling an outstanding one. Plant directors, in turn, spend so much of their time at the leading organs, and with potential suppliers, that their subordinates sometimes jokingly refer to them as "ministers of foreign affairs." [28] Not only do they develop close working relationships, but the circle of officials and executives comprises an informal team that coordinates the activities of the planning and financial organs in relation to the enterprise. Major plant decisions—to develop new product lines, expand the plant, import parts from overseas, take out a bank loan—must be examined and discussed by each of these organs, whose representatives often meet together, sometimes at the enterprise itself, for this purpose. Many of the decisions to allow enterprises an exception to price, loan and tax arrangements are made by the same group. This local circle of officials and executives therefore has an interest in cooperative working relationships—something made easier by their personal familiarity and frequent contact.

In this kind of local setting, in which enterprise executives and representatives of state organs constitute an informal management team that guides the development of local industry, there naturally develops attitudes conducive to the softening of budget constraints. Quite evident in interviews conducted both in Shanghai and Hong Kong was an attitude that can be characterized as "we're all in this together." [29] It often was revealed in interviews in ways that

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and production records (as opposed to short-term juggling between reporting periods), and outright corruption on the part of factory personnel, further complicates the flexibility inherent in the financial guidance of enterprises. The analysis presented here assumes that everyone adheres to regulations.

[28] This analogy was drawn by several interview subjects in Hong Kong in 1980. One short story portrays the relationships between factory executives and officials in their leading organs in an illuminating way. See Jiang Zilong, "Yige Gongchang Mishu de Riji" (Diary of a Factory Secretary), in *1980 Nian Quan Guo Youxiu Duanpian Xiaoshuo Pingxuan* (Shanghai: Shanghai Wenyi Chubanshe, 1981), 169-195.

[29] There is, in fact, an economic basis for such attitudes. Shirk, "The Political Economy of Reform," and Naughton, "Economic Reforms and Decentralization," show the interests that these actors share in the rapid development of local industry.

informants were unaware. We asked one tax official whether, in view of the personal nature of the enforcement of taxation, there might develop "human sympathy" (*renqing*) between the tax agent and the enterprise's executives. His response was that this could not possibly happen, since in a socialist country, there does not exist a motivation for bending tax regulations. The tax agent, he pointed out, could gain nothing personally by doing this, nor could enterprise executives gain anything personally from this. Pressing his argument further, he pointed out that all the money belongs to the state, and all of the people involved work for the state and are involved in the same project. The interesting thing about this answer is that it is a perfect illustration of why a tax bureau *would* be willing to show flexibility out of "human sympathy." Are they all not working for the same side? Is it not all state funds anyway? Aren't executives seeking lower taxes not for personal gain but for the purposes of increasing production and serving the four modernizations? These in fact are precisely the attitudes that foster a soft budgetary regime.[30]

Relationships between the enterprise and its leading organ are further complicated by the fact that promotion chains for the executive leads to the bureau or company office. The bureau or company personnel office holds all the dossiers on enterprise executives. Top bureau officials often know the executives of factories quite well—they are their former colleagues, and perhaps their current proteges. Just as ties of personal sympathy and loyalty exist within factory offices, they also exist within the bureau—between its officials and their subordinates in the factory offices.[31] One factory financial cadre, highly supportive of the reform program but frustrated that it had not been fully implemented in his factory, blamed the lack of progress on the fact that the leading organs did not strictly enforce the financial regulations on the books, and did not penalize executives who performed poorly. When asked why they did not do so, he replied with a rhyming couplet: "Shangmian you houtai, xiamian you bangpai" ("Above are the backers, below are their cliques").[32] In other words, personal backing from above undermines strict enforcement.

These organic ties between industrial bureau and factory would not be so damaging were it not for the fact—evident in interviews—that bureaus have some influence over the decisions of local finance bureaus, banks, and taxation bureaus. On paper, of course, these are independent entities. But they are all answerable to local government and party organs: the industrial bureau for production, the finance and tax bureaus for local revenues, and the banks for the fiscal management of industry. We were not able to explore these mutual relationships in any detail, but we noted that many decisions—regarding plant expansion, large loans, or major renovations—were taken by the industrial bureau in concert with the finance bureau. Once these two backed a project, the bank apparently carried it out. Others, like the setting of the adjustment taxation rate by the finance bureau, are subject to influence by the industrial bureau. Projects that have the backing of a factory's leading organ—especially if they are seen as crucial to the development of local industry—therefore have a high chance of approval. By extension, factories that can convince leading organs that they are experiencing difficulties due to "objective conditions" have an ally in persuading financial organs that they deserve concessions in the enforcement of financial rules.

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[30] A professor of management from Shanghai, who sat in on this interview, took issue with the argument that personal sympathies would not become a problem in the enforcement of taxes.

[31] These ties are vividly portrayed in a fictional account: Jiang Zilong, "Qiao Changzhang Shangren Ji" (Manager Qiao Assumes Office), in *Qiao Changzhang Shangren Ji* (Jiangsu: Jiangsu Renmin Chubanshe, 1979).

[32] Interview with a former head of a factory finance department, Hong Kong, July 1984.

CONCLUSIONS

There is one obvious conclusion to be drawn from the analysis presented here: that no reform scheme for enlarging enterprise autonomy and increasing financial accountability is likely to succeed without simultaneous attention to the difficult problem of enforcement at the local level. The financial constraints on enterprises must be significantly "hardened", and this cannot be accomplished simply by devising new schemes for dividing revenues and offering incentives to factory managers. The first step, as many Chinese and western writers have already pointed out, is an overhaul of China's price system. But beyond this is an equally intractable problem: to carry through a careful re-design of relationships at the lowest levels of the economic bureaucracy. There are signs that will alert us that this is taking place. Proposals to reduce the multiple sources of flexibility in financial regulations will be one indicator that this problem is being addressed. An effort by central government organs to place limits on local level discretion in responding to factory requests for flexibility, and a change to some incentive system for industrial bureaus to enforce hard criteria are two others.[33] This will likely appear as a recentralization of certain economic powers that reduces the discretion of local organs. This type of recentralization, which would place limits on local government flexibility without robbing enterprises of the business autonomy they possess, would not run counter to reform, but would instead create a precondition for reform by hardening the budget constraint. At this point, we should stress, China would be on the frontier of reform—the experiences of Hungary and Yugoslavia, two countries that have not solved this problem, would provide little guidance.

It is by no means surprising that we find such flexibility and softness in the financial guidance of enterprises, despite six years of reform. The financial system has been in continual flux for several years. Profit retention schemes have changed every year since 1978. The tax system is only beginning its second, very tentative stage. The price system is still basically unreformed. Professional Chinese economists, as well as the management personnel we have interviewed, are quick to point out that the long process of reform has just begun. They do not expect quick results, nor should we.

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[33] Hewett, "Economic Reform in the Soviet Union and Eastern Europe," p. 12, argues that one essential component of a successful reform package must be to put industrial bureaus themselves on a reformed financial incentive system, rather than leave them concerned primarily with output.

Perhaps the most encouraging sign on the contemporary industrial scene is that there appears to be a widespread commitment to reform and an understanding that it will necessarily be a long-term project.

One could argue, of course, that some local flexibility is needed in the bureaucratic guidance of enterprises, and that signs of continuing flexibility at the local level are not in themselves an indication of a soft financial regime. This is true enough, but the issue is whether the flexibility is exercised in a principled and objective fashion. There is simply no data available to measure the extent to which flexibility in fiscal guidance is 'hard'.[34] My enumeration of the many-sided flexibility of financial measures, and the obvious subjectivity of the criteria currently used to evaluate many factory requests, indicates that it is highly unlikely that there has been a significant hardening of the budget constraint. Were we to have complete data on enterprise finances, we would very likely find a pattern similar to that uncovered by Kornai in a 'reformed' Hungary: that total state subsidies are about equal to gross profits; that there is no correlation between gross and net profits; that there is no correlation between reinvestment expenditures and profitability (no matter what the time-lag); that profits and losses are leveled out between enterprises; and that there is no relationship between profitability and the closing of firms.[35]

If the recent financial reforms are but the first step in a long and deepening process of change, and if this process of change includes direct intervention to alter the informal relationships between enterprises and the organs that guide them, then there will be cause for genuine optimism. If, however, the recent reforms are just the beginning of a long process in which the state continually reshapes financial regulations without facing up to the difficult political and organizational problems of local enforcement, then there will be little reason to expect that China's industrial reforms will escape the fate of Hungary's.

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[34] Through 1983 there had been no significant improvement in the main aggregate measures of industrial productivity: see Rawski, "Productivity, Incentives, and Reform." Enterprise-level data, of the type used with great effect for Hungary, is necessary to measure the hardness of the budget constraint. The World Bank is reportedly working on a collaborative research project with the Chinese Academy of Social Sciences to measure the effect of reform at the factory level. See Knight, *Economic Reform in Socialist Countries*, p. 112.

[35] Kornai, "'Hard' and 'Soft' Budget Constraint."

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